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Factors that influence traditional-age college students to re-enroll in their third year at a research extensive university in the southern region of the United States

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FACTORS THAT INFLUENCE TRADITIONAL-AGE COLLEGE STUDENTS TO RE-
ENROLL IN THEIR THIRD YEAR AT A RESEARCH EXTENSIVE UNIVERSITY IN THE
SOUTHERN REGION OF THE UNITED STATES

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The School of Human Resource Education
And Workforce Development

by

Joseph M. Lutta
B.S., Egerton University, Njoro (Kenya), 1990
M.S., Louisiana State University, 2006
December, 2008

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DEDICATION

This dissertation is dedicated to my late loving parents, Stephen Charles Lutta and Frida Atsiende Lutta, who inculcated in me the love for education, the importance of self-discipline and self-sacrifice, the value of hard work, the concept of excellence, the respect for others, and need to be magnanimous in all situations. Their perpetual love for me, their pride and confidence in me, their encouragement and care for me, and their enduring determination to see me successful, formed the foundation for the journey that has culminated in this accomplishment. My parents' support and personal sacrifices for me, coupled with the moral and ethical standards that were part of their daily lives, have shaped and defined my life and I will forever be grateful. Even though my parents did not live to share in my achievement, I am sure they are delighted from their heavenly homes. To Mom and Dad, I say, Thank You, and I Love You!

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ABSTRACT

Student retention is of policy significance to higher education systems. In the United States, student retention is a major problem in higher education affecting students, universities, and society. Most of the research on student retention has focused on first-year students. Little is known about the retention of college students after their first year.

The primary purpose of this study was to determine the influence of selected demographic and academic characteristics on the decision of traditional-age, undergraduate students to re-enroll at a research-extensive university.

The population was defined as all traditional-age undergraduate students who entered the selected university during the fall 2005 semester. A total of 16 independent variables were collected from admissions and student aid databases and transferred to a computerized, recording form that served as the research instrument.

Using stepwise multiple discriminant analysis, the researcher identified a significant model that increased the researcher's ability to accurately explain the retention status of traditional-age, undergraduate students. The model correctly classified 86.7% of the cases, which was a 39.3% improvement over chance. The researcher recommended further studies to increase the percentage of correctly classified cases by integrating these variables with others to further explain retention status. Variables suggested were: a more detailed examination of the students' financial aid portfolio; students' GPA during their second and subsequent semesters of enrollment; students' involvement in other student activities and organizations; and survey and/or focus group data regarding the perceptions of enrollment management personnel.

The researcher further found that many non-retained students entered the study institution with very good high school academic records, contrary to previous studies. The researcher recommended further study to determine why students with strong academic credentials leave

college before their third year. The researcher suggested the use of exit interviews of students leaving the university.

The researcher also found that a small portion of the retained students received one of the university's five major academic scholarships. There is strong evidence to suggest that scholarships have a significant influence on student retention. The researcher recommended that the study institution seek more funding to increase the number of scholarships to award to incoming students.

CHAPTER ONE

INTRODUCTION TO THE STUDY

“Retention and persistence are important issues that impact not only colleges, but our entire country and its future competitiveness in the global economy. When a student drops out of college, no one wins – not the student, not the college, and not the greater society” (Richard L. Ferguson, American College Testing Program’s Chief Executive Officer, ACT, 2007, p. 1).

The Importance of College Education

The National Center for Education Statistics (U.S. Department of Education, 2006) details the individual financial returns as indicated by earnings of men and women by their level of education. The 2006 study indicates that men over the age of 25 who had completed at least a bachelor’s degree earned 60 percent more in 1999 than men with only a high school diploma. From the same study, women over the age of 25 with a bachelor’s degree earned 65 percent more in 1999 when compared to their counterparts with a high school diploma only (U.S. Department of Education, 2006).

Researchers have stated that society functions better with a more educated population and that markets are more efficient with educated consumers (Geske & Cohn, 1998; Yorke & Longden, 2004). Externalities arising from a more educated population include: analytical thinking and research that benefits society, a generation less dependent on government transfers, and individuals with greater support for future investments in education to benefit the population. Importantly, research (Bryant, 1990; Cohn & Geske, 1990, 1992) supports the belief that education has a significant role in decreasing rates of poverty and income inequality (Geske & Cohn, 1998). In addition, investments made in higher education result in utility benefits to the whole society (Geske & Cohn, 1998).

Economists observe that the consumption of certain goods may create effects external to the original goal, either called negative or positive externalities (Geske & Cohn, 1998). An assumed rationale for providing subsidies for higher education is that those providing the subsidy will derive utility from the positive benefits a higher education provides the society as a whole, as well as the individual earning the education. An individual's demand for a college education is dependent on both their current economic resources and their expected benefits following earning that college education (Singell, Jr, 2004). In keeping with economic models, a person will decide to enroll in college because they believe a college education will benefit them in many ways (Reynolds & Weagley, 2003).

Bryant (1990) explains that a person's decision to enroll in college is dependent on the costs and benefits associated with getting the education. For example, individuals will choose to invest in their own education until the marginal costs, both real and opportunity, exceed the marginal benefits they actually receive from one more unit of education (Becker, 1964; Bryant, 1990). Becker's (1964) human capital theory can be used to explain individuals' decision to invest their time and money in a college education. Human capital can be regarded as an individual's knowledge, skills, and productive abilities (Bryant, 1990). Human capital theory explains that investments in education increase an individual's efficiency in the labor market and result in higher earnings for that individual.

Since employers do not know with certainty how productive a worker will be when hired, certain indicators exist that are correlated with higher productivity. These may be observed and markets act on these signals (Light, 1995). One of the most important indicators employers consider is the education of the employee (Reynolds & Weagley, 2003). Given that higher education increases an individual's productivity or efficiency, employers use education as an indicator of expected productivity and will pay higher initial wages to individuals with more

education (Spence, 1973). Persons who obtain higher education are known to have the type of qualities sought by employers, and higher earnings are paid to these employees before any effect on productivity is evident. Therefore, educational attainment is being used as a screening or signaling device (Light, 1995; Spence, 1973).

Creating the conditions that foster student success in college has never been more important. McCabe (2000) estimates that 80 percent of high school graduates need some form of postsecondary education to prepare them for an economically self-sufficient life. Furthermore, higher education also prepares individuals to deal with the increasingly complex social, political, economic, and cultural issues they will face. Earning a baccalaureate degree is the most important rung in the economic ladder (Bowen, 1978; Bowen & Bok, 1998; Boyer & Hechinger, 1981; Nuñez, 1998; Nuñez & Cuccaro-Alamin, 1998; Pascarella & Terenzini, 2005; Trow, 2001), as college graduates on average earn almost a million dollars more over the course of their working lives than those with only a high school diploma (Pennington, 2004). Yet, if current trends continue in the production of bachelor's degrees, a 14 million shortage of college-educated working adults is predicted by the year 2020 (Carnevale & Desrochers, 2003).

Background of the Study

Student retention and dropout are not new phenomena in higher education. Edgerton and Toops (1929) and McNeely (1937) were the earliest researchers to conduct empirical inquiry into retention and attrition. Tinto (1982, 1987, 1993) reported that the rate of student attrition has held constant between 40 – 45 percent for more than 100 years. Few problems in higher education have received as much attention as student dropout (Hodum, 2007). Over time, several institutional and individual variables have been examined to help explain their effect on retention (Astin, 1986; Berkner, 2000; Braxton, Sullivan, & Johnson, 1997; Cabrera, Stampen, & Hansen, 1990; Stage & Hossler, 2000). Even with a long history of awareness and numerous research

studies, there is still so much that is not known about student retention, particularly student persistence after the freshman year (Cofer & Somers, 1999; Nora, Barlow, & Crisp, 2005; Reynolds & Weagley, 2003; Seidman, 2005; Tinto, 1993).

Student retention can be viewed from two different perspectives. The first perspective has to do with broad-based benefits to the university and even to society. These benefits include maintaining stable enrollments (enrollment management) to support the university's budget (Levitz, Noel, & Richter, 1999). Stable enrollments based on higher retention rates are more predictable, rely less on pressuring the admissions office to increase recruiting targets (while often lowering quality), and are more manageable in terms of course demand and level and type of student services needed. According to Kuh, Kinzie, Buckley, Bridges, & Hayek (2006), the second perspective of retention is concerned with fostering student success. When students are admitted as new freshmen, they are being invited to become part of the campus community.

One of the goals of admission staff is to enable individual students to be as successful as they can be (Astin, 1984; Bean, 1980; Braxton, Sullivan, & Johnson, 1997; Paulsen & St. John, 1997). If admission and other student services personnel are serious about helping students succeed, retention is a necessary but not sufficient component to their success (Kuh et al., 2006; Williford & Schaller, 2005). A policy report by ACT (2004) points out that retaining students will help students reach their goals and ultimately help America's workforce compete globally (Carey, 2004; Lotkowski, Robbins, & Noeth, 2004; Williford & Schaller, 2005).

Persistence is the term frequently used by higher education administrators to describe a student's ability to complete degree requirements and achieve the signal used by the market to screen for the most productive people (Yorke & Longden, 2004). To fully capture all of the benefits of a college education, it is imperative for the college students to persist until they complete their degree programs. Of the college students entering four-year institutions, over one-

fourth of them depart after their first year (Reynolds & Weagley, 2003; Seidman, 2005; Tinto, 1993). Students' chances of going to college and actually receiving their degree continue to be closely associated with their demographic characteristics, academic performance, aptitude, precollege experiences, disability, and socioeconomic status of their family (Astin, 1996; Braxton et al., 1997; Cofer & Somers, 1999; Seidman, 2005; St. John, Kirshstein, & Noel, 1991; Yorke & Longden, 2004). To address the question of why students depart before degree completion, many colleges have implemented student support programs that are specifically designed to encourage student retention. The so-called "departure puzzle" has been studied by researchers for over seventy years (Braxton, 2000, 2000b; Seidman, 2005).

Upcraft and Gardner (1989) and Tinto (1993) emphasized the dilemma higher education faces in assisting new students' transition effectively into a different academic, social, and personal environment. Ferguson, the Chief Executive Officer of the American College Testing Program (ACT, 2004), stated, "Students tend to drop out because their expectations of college—academically, socially, or both—don't match up with the reality once they get there" (p. 2). The failure to retain students has been found to be most evident during the first and second years and many individuals tend to drop out within the first six weeks of the semester of enrollment (Elkins, Braxton, & James, 2000; Levitz & Noel, 1989).

Retention of students is thus an issue that affects higher education across the world (Yorke & Longden, 2004; Young, Glogowska, & Lockyer, 2007). The desire to widen participation has resulted in significant growth in student numbers, but also higher levels of attrition across the sector. Retention is therefore an issue of increasing concern to higher education institutions and the focus for much research and development activity (Young et al., 2007).

Why Research Is Important

Continued research on the retention problem in institutions of higher education has become necessary for many reasons. Burr, Burr, and Novak (1999) posit that retention studies must aim at helping stakeholders to foresee and classify most important needs of the ever-changing college student population. The Student Retention Report by the University of Arizona (1998) (as cited in Hodum, 2007, p. 3) concluded that:

“Retention research is important because it: (a) provides colleges with data that is useful in modifying and influencing policy; (b) provides recruiters with insight into which students match the particular school’s environment; (c) provides colleges with the opportunity to share pertinent information with prospective and current students; and (d) facilitates the identification of initiatives and programs that help students succeed.”

The importance of new retention research can be found in answering two old retention questions that have continually yielded different findings (Hodum, 2007; Li & Killian, 1999):

- (1) How are those students who stay different from those who leave?
- (2) What are the main influences encouraging students to stay?

Extensive research on individual student characteristics has examined the impact of *age* (Lanni, 1997; Windham, 1995), *gender* (Aquino, 1990; Mohammadi, 1994), *ethnicity* (Aquino, 1990; Wall, Lessie, & Brown, 1996), *student employment* on campus (Lanni, 1997; Windham, 1995), *high school academic experience*, *type of college attended*, *generation of student* (Paulsen & St. John, 2002), *student disability* (Brooks Jr., 2006; Getzel et al., 1993; Hill, 1992; Malakpa, 1997; McLoughlin, 1982; Moran & Weatherby, 1989; Spillane, 1992), and other notable variables. Astin (1970) in his research listed 146 input characteristics of students whereas Tinto (1975) determined students’ individual skills and background characteristics that influence retention. The argument presented by Astin and Tinto is that both individual and institutional variables play

a significant or larger role in student retention (Hodum, 2007; Muckert, 2002; Nora et al., 2005; Pascarella & Terenzini, 2005; Seidman, 2005).

The United States Department of Education (2006) reported that different types of institutions—two-year and four-year, public and private, commuter and residential—have varying retention rates. Institutional variables that researchers have examined include structural and organizational features of the institution (Pascarella, 1985), organizational determinants such as student housing (Tinto, 1993; Warner & Noftinger, 1994), communication rules, institutional quality (Bean, 1980), and intervention programs (Brawer, 1996; Hodum, 2007). Institutional intervention programs that promote academic and social integration have received a lot of attention recently (Habley & McClanahan, 2004; Lau, 2003; Pascarella & Terenzini, 2005; Ryan & Glenn, 2004).

Statement of the Problem

Student retention and attrition are of policy significance to higher education systems around the world (Yorke & Longden, 2004). All over the world, governments want higher education institutions to be as effective and efficient as possible. This concern is not only informed by labor market considerations, but also by the increased need for governments to account to their general publics for the huge investments they make in higher education on their publics' behalf (Seidman, 2005; World Bank, 1997; Yorke & Longden, 2004). When students discontinue their studies involuntarily (because of academic failure or some precipitating cause that is not their responsibility) or more voluntarily, this can be construed as inefficiency in the system (Yorke & Longden, 2004). Yorke and Longden (2004) provide a more succinct summary that highlights the significance of student retention,

“Retention and dropout are of obvious concern to colleges and universities. Institutions of higher education signal in various ways their commitment to the students whom they enroll; thus, high levels of dropout inevitably raise questions about the fulfillment of that commitment. Keeping retention levels as high as

possible is important because of the reputational benefit that accrues from the success of their students, and because of the economic stability that a predictable student base engenders” (p. 1).

Higher education institutions all over the world are under pressure to reduce the rates of students dropping out of college, and develop new and innovative means that encourage students to continue (Crosling, Thomas, & Heagney, 2008; Thomas & Quinn, 2003). Crosling et al. (2008) observe that in the UK, for instance, the Higher Education Funding Council measures institutions’ progression and completion rates via performance indicators. Institutions are penalized financially for low rates of student retention. Similarly, in Australia, student retention is one of the indicators of quality teaching and learning utilized by the federal government for the allocation of funding (Crosling et al., 2008; Muckert, 2002).

In the United States, student retention is a major problem in higher education affecting students, colleges and universities, and society (Pascarella & Terenzini, 2005; Seidman, 2005; Yorke & Longden, 2004). Tinto (1993) reported that out of the 1.5 million U.S. students who departed institutions of higher learning in 1993, 74 percent never completed a two-year or a four-year degree. Braxton, Hirschy, and McClendon (2004) cautioned that failure to retain students has resulted in 50 percent of students leaving higher education early. The American College Testing (2004) and Hodum (2007) estimated that nearly a third (31.7%) of students attending four-year colleges or universities leave between fall-to-fall semesters. It has been further suggested that because of the intense focus by researchers and practitioners on the first year dropouts, problems with student dropouts in subsequent years have not been exhaustively examined (Braxton & Lien, 2000; Nora, 2004; Nora & Cabrera, 1996; Nora, Cabrera, Hagedorn, & Pascarella, 1996; Seidman, 2005).

Various studies (Hodum, 2007; Kuh et al., 2006; Lau, 2003; Muckert, 2002; Pascarella & Terenzini, 2005; Titus, 2004) have shown that most institutions have a major problem of

student dropout. The student departure often leads to the institutional loss of finances and lower graduation rates. Tinto (1993) mentions that “Some institutions, primarily the smaller tuition-driven colleges, have teetered on the brink of financial collapse” (p. 2) because of low student retention rates. Various public colleges and universities are under state mandates to enhance two-year, four-year, and six-year retention and graduation rates (Ryan & Glenn, 2004; Seidman, 2005). According to Titus (2004), colleges and universities are being held accountable for retention and graduation rates even though more about what contributes to college student persistence needs to be investigated further.

Policy makers in several states are using retention and graduation rates as indicators of performance for higher education institutions. A study undertaken by the State Higher Education Executive Officers (SHEEHO) reports the use of retention or graduation rates by 32 states as an indicator of performance for higher education institutions (Christal, 1998; Titus, 2004).

In some countries (for example, the United Kingdom and Australia), continued government funding of colleges and universities is contingent upon the institutional performance. A key measure of institutional performance is the student persistence and graduation rates (Crosling et al., 2008; Muckert, 2002). Furthermore, college student retention rate is one of the factors that indirectly affect prospective students and their families when making decisions to apply for college (Singell Jr, 2004). Colleges and universities have implemented many intervention programs, such as developmental studies, academic advising, learning communities, financial aid, and freshmen experience programs, in their efforts to address the problem of student dropout (Hodum, 2007; Muckert, 2002; Nora et al., 2005).

Higher education institutions are not the only stakeholders who lose due to poor student retention rates. The United States has over the years suffered with a weakened ability to be competitive in the world economy due to insufficiently educated workers (ACT, 2004; Porter,

2001; Williford & Schaller, 2005). Baum and Payea (2004) stressed that student attrition is problematic for all stakeholders because students' future productivity and potential to contribute to society is linked to graduation from college. When students drop out of colleges and universities, these institutions lose and the whole nation suffers loss; but it is the students who leave higher education that ultimately pay the heaviest price for early departure (Carey, 2004; Hodum, 2007).

The pressure for student retention emanates from the recent, momentous changes in higher education worldwide. These changes have resulted in the movement from an elite higher education system catering for the educational needs of a small and limited number of the society, to a "massified" (Trow, 1973, as cited in Crosling et al., 2008) one where large numbers of students attend higher education (Crosling et al., 2008; Crosling & Webb, 2002; Radford, 1997).

Student retention is the product of a longitudinal process of varied lengths in students' lives (Astin, 1994; Braxton et al., 1997; Ishitani & DesJardins, 2002; Nora et al., 2005; Seidman, 2005). While some students may re-enroll for a second or third year in college, dropping out of college is still a consideration among many students. According to Ishitani and DesJardins (2002):

"Factors that have been found to impact student retention among first-year students may carry over to subsequent years, culminating in a decision to withdraw from college. Moreover, it is reasonable to assume that the strength and direction of those factors influencing dropout behavior may change over time. New factors must also be taken into consideration as students proceed from one year to the next" (p. 129).

While it is not extensive, a body of literature exists that examines student retention rates in the second and third years of college and factors that influence students' decision to leave college (Nora et al., 2005; Seidman, 2005). Bartlett and Abell (1995) examined the number of first-time-in-college students retained over a ten-year period at a four-year institution in the Midwest. During that time, it was found that between 72 and 80 percent of the beginning

freshmen were retained to second year (fall of first year to fall of second year). The researchers also found that between 60 and 70 percent of the students re-enrolled in the third year.

Furthermore, between 55 and 65 percent of the same student cohort persisted to the fourth year (Bartlett & Abell, 1995). This shows a diminishing retention rate as students proceed from their first year to subsequent years. The crucial question to ask is: what factors influence the dropout of students from college after their first year?

Data on sixty-seven U.S. colleges and universities (Smith, 1995) and data from the National Center for Educational Statistics (United States Department of Education, 2002) have documented that nearly 80 percent of first-year-in-college students continued to the second year. Approximately 66 percent of the students were retained in the third year (Nora et al, 2005). Most of the research on student retention has focused on the persistence of first-year students (St. John, 2000). This has left a lot of gaps in the literature concerning the student persistence beyond their first year of college. Nora et al. (2005) blame lack of data on students beyond their first year in college on the shortcomings associated with large national databases. This study aimed at adding to the body of literature on student retention beyond their first year of college.

The unsolved puzzle of student retention and its impact on individuals, institutions, and society provided the impetus for this study. This research effort was focused upon finding the missing piece(s) in the student withdrawal puzzle. Participation in postsecondary education has positive benefits for both individuals and society as a whole (Reynolds & Weagley, 2003; Seidman, 2005). An extensive body of research shows that higher education can have a significant impact on the wages an individual can command in the marketplace (Light, 1995; Reynolds & Weagley, 2003).

Purpose of the Study

The primary purpose of this study was to determine the influence of selected demographic and academic characteristics on the decision of traditional-age, undergraduate (college) students to re-enroll at a research-extensive university in the Southern region of the United States.

Research Objectives

The following objectives were developed to guide this study:

1. To describe traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
 - a. Age;
 - b. Gender;
 - c. Race/Ethnicity;
 - d. Overall high school grade point average (GPA);
 - e. College entrance examination (ACT/SAT) composite scores;
 - f. High school academic grade point average (GPA);
 - g. Credit hours the student carried each semester;
 - h. Credit hours the student earned each semester;
 - i. Cumulative college grade point average (GPA) as of or at the end of their second year;
 - j. College grade point average for the first semester of the first year;
 - k. Whether or not the student lived on campus;
 - l. Initial academic college of enrollment;

- m. Whether or not the student changed major and if so the number of times changed;
 - n. Whether or not the student was a resident of the state;
 - o. Whether or not the student received one of the university's major academic scholarships;
 - p. Whether or not the student was involved in selected college-level student activities and organizations;
2. To describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
- a. Age;
 - b. Gender;
 - c. Race/Ethnicity;
 - d. Overall high school grade point average (GPA);
 - e. College entrance examination (ACT/SAT) composite scores;
 - f. High school academic grade point average (GPA);
 - g. Credit hours the student carried each semester;
 - h. Credit hours the student earned each semester;
 - i. Cumulative college grade point average (GPA) as of or at the end of their second year;
 - j. College grade point average for the first semester of the first year;
 - k. Whether or not the student lived on campus;
 - l. Initial academic college of enrollment;

- m. Whether or the student changed major and if so the number of times changed;
 - n. Whether or not the student was a resident of the state;
 - o. Whether or not the student received one of the university's major academic scholarships;
 - p. Whether or not the student was involved in selected college-level student activities and organizations.
3. To compare the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and inclusion in the 14th class-day statistics, to those traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research-extensive university in the Southern region of the United States as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
- a) Age;
 - b) Gender;
 - c) Race/Ethnicity;
 - d) Overall high school grade point average (GPA);
 - e) College entrance examination (ACT/SAT) composite scores;
 - f) High school academic grade point average (GPA);
 - g) Hours the student carried each semester;
 - h) Hours the student earned each semester;
 - i) Cumulative college grade point average (GPA) as of or at the end of the second year;
 - j) College grade point average for the first semester of the first year;

- k) Initial academic college of enrollment;
 - l) Whether or not the student lived on campus;
 - m) Whether or not the student changed major and if so the number of times changed;
 - n) Whether or not the student was a resident of the state;
 - o) Whether or not the student received one of the university's major academic scholarships;
 - p) Whether or not the student was involved in selected college-level student activities and organizations.
4. To determine if a model existed that significantly increased the researcher's ability to accurately explain the retention status of traditional-age, undergraduate students regarding whether or not they re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment or non-payment of fees and inclusion or non-inclusion in the 14th class-day statistics from the following demographic and academic characteristics:
- a. Age;
 - b. Gender;
 - c. Race/Ethnicity;
 - d. Overall high school grade point average (GPA);
 - e. College entrance examination (ACT/SAT) composite scores;
 - f. High school academic grade point average (GPA);
 - g. Credit hours the student carried each semester;
 - h. Credit hours the student earned each semester;
 - i. Cumulative college grade point average (GPA) as of or at the end of their second year;

- j. College grade point average for the first semester of the first year;
- k. Whether or not the student lived on campus;
- l. Initial academic college of enrollment;
- m. Whether or not the student changed major and if so the number of times changed;
- n. Whether or not the student was a resident of the state;
- o. Whether or not the student received one of the university's major academic scholarships;
- p. Whether or not the student was involved in selected college-level student activities and organizations.

Significance of the Study

The results of this study were envisaged to contribute to the limited research and body of knowledge concerning retention of traditional-age college students beyond their first- and second-years of study at research extensive institutions in the United States. By examining the selected demographic and academic characteristics of students who qualified for and re-enrolled in their third year, to those who qualified for, but did not re-enroll in their third year, at this research extensive university in the Southern region of the United States, the researcher anticipated to gain insight into the factors that influence students' decisions to persist in college after their first year of study. The researcher hoped to make specific recommendations to the enrollment management professionals in recruiting offices, admissions offices, student aid and scholarship offices, and student service providers. The ultimate aim was to enable the enrollment management professionals to focus their recruitment efforts and student support programs on students that are likely to remain in college till graduation.

As more of these students continue to re-enroll, institutions of higher education are likely to increase their retention and graduation rates. Higher retention and graduation rates have been shown to have high impact on the institutions' revenues, reputation, and performance. Any effort aimed at increasing retention and graduation rates without doubt needs to be supported and encouraged. The model resulting from this study should be useful to many other research-extensive institutions of higher education as they grapple with their own strategies to increase retention and graduation rates.

Definition of Terms

The student demographic information, as reported to the study institution's Office of Undergraduate Admissions at a research-extensive university in the Southern region of the United States by each student on the undergraduate admission application or as determined by the Office of Undergraduate Admissions from the information reported by each of the second-year (sophomore) students on their re-enrollment application, was as follows:

- 1) Age - as reported by the student on undergraduate admission application
- 2) Gender – as reported by the student as female or male.
- 3) Ethnicity – as indicated by students from the following: African-American, Asian, Caucasian, Native American, and Hispanic.
- 4) Residency Status – as defined by the Office of Undergraduate Admissions as to whether the student was a resident or non-resident of the state in which the study university is located.
- 5) Overall High School Grade Point Average (GPA) – defined as the grade point average for all courses completed in high school. For students who graduated from one of the state's high schools, their overall high school GPA was submitted to the study institution by the state's department of education. For

- non-resident students who graduated from out-of-state high school, their overall high school GPA was stated on the students' high school transcripts submitted to the study institution by the students' high school.
- 6) High School Academic Grade Point Average – the student's academic performance as calculated on a 4.00 scale by the Office of Undergraduate Admissions on the grades earned from all completed high school academic courses (English, mathematics, natural sciences, social sciences, foreign languages, computer studies, and visual and performing arts).
 - 7) College Entrance Examination (ACT/SAT composite score) – as reported directly to the Office of Undergraduate Admissions from American College Testing (ACT) and The College Board (SAT scores). According to Brooks Jr (2006), SAT scores are converted to the ACT equivalent value using the “Concordance between SAT I Re-centered V+M (Verbal + Math) Score and ACT composite Score Table” by the Office of Undergraduate Admissions (p. 13). For students who submit both ACT and SAT scores, the Office of Undergraduate Admissions uses the highest score to make admission decisions. This study will use the student's highest ACT composite score or the highest SAT score that will be converted to its ACT composite score equivalent.
 - 8) Hours Carried – the number of credit hours the student registered for each semester as reported by the Office of Undergraduate Admissions.
 - 9) Hours Earned – the number of credit hours the student successfully completed each semester as reported by the Office of Undergraduate Admissions.

- 10) Student's Living Status – as defined by the Office of Undergraduate Admissions as to whether or not the student lived in the institution's halls of residence.
- 11) Academic College of Enrollment – the college in which the students enrolled for their major.
- 12) Financial Aid (scholarships, grants, or loans) – as to whether or not the student received or was offered one of the financial aid packages such as (1) tuition opportunity program for students (TOPS), (2) major academic scholarships, (3) grants, and (4) loans.
- 13) Dropout – refers to students who leave the university before completing their degree program.
- 14) Persistence – refers to the full-time enrollment of students at the university for at least three consecutive academic semesters.
- 15) Postsecondary Education – refers to a program of study in which students enroll, after completion of their high school, in order to receive training in a specified area of study designed to provide the students with a diploma, certificate, or license on successful completion.
- 16) Retention – is defined as a student's successful continuation of his/her study from one semester to the next in the same educational institution.
- 17) Academic Integration – is defined as a combination of student participation in tutoring sessions, study skills classes, and academic counseling sessions.
- 18) Social Integration – is defined as a combination of participation in peer mentoring and personal counseling sessions.

- 19) Traditional-age students – defined as the individuals joining university immediately after successful graduation from their high school.

CHAPTER TWO

LITERATURE REVIEW

This chapter aims at critically reviewing the theoretical and empirical literature concerning college student retention in the United States. The review is organized in four sections. The first section gives an overview of the problem of college student retention in higher education, including introduction and context, its historical evolution, and current trends. Next is a consideration of theoretical models of college student dropout process, with special emphasis on the level of empirical support for Tinto's (1975, 1987, 1993) interactionalist student departure theory. The third section is a review of specific intervention programs that research has determined facilitate retention. The final section is a critical examination of the factors that influence students to drop out of institutions of higher education in the United States.

Introduction and Context

According to Cabrera, Nora, Terenzini, Pascarella, and Hagedorn (1999), there are numerous benefits associated with a college degree. Research (e.g., Hossler, Braxton, & Coopersmith, 1989; Pascarella & Terenzini, 1991) shows a college graduate is far less likely to commit a crime and approximately 30 percent less likely to be unemployed compared to a high-school graduate. This is a direct benefit to the society. Looked at from an individual perspective, each extra year of schooling past high school has been shown to prolong life by 0.4 percent upon graduation from college (Cabrera et al., 1999; Hossler et al., 1989). Moreover, earning a college degree is known to produce greater gains in occupational prestige (e.g., Lin & Vogt, 1996) and economic returns (e.g., Cabrera et al., 1999; Leslie & Brinkman, 1986) as compared to simply attaining a high-school diploma.

A precondition for the attainment of these benefits is persistence to graduation. Although college student retention rates have remained remarkably stable at roughly 45 percent as far back

as 1885 (Porter, 1990; Tinto, 1982), there are notable variations across the ethnicity of the students (Cabrera et al., 1999). Compared to Caucasian students, African Americans are 20 percent less likely to complete college within a six-year period (Porter, 1990). Cabrera et al. (1999) and Porter (1990) explain that for every two Caucasian students who drop out of college within the six-year time frame, three African Americans have departed from a postsecondary institution.

Creating the conditions that foster student retention and ultimate success in college has never been more important. As many as four-fifths of high school graduates need some form of postsecondary education (Carey, 2004; McCabe, 2000) to prepare them to live an economically self-sufficient life and to deal with the increasingly complex social, political, and cultural issues they will face (Kuh et al., 2006). Earning a baccalaureate degree is the most important rung in the economic ladder (Bowen, 1978; Bowen & Bok, 1998; Boyer & Hechinger, 1981; Nuñez 1998; Nuñez & Cuccaro-Alamin, 1998; Pascarella & Terenzini, 2005; Trow, 2001). College graduates on average earn almost a million dollars more over the course of their working lives than those with only a high school diploma (Pennington, 2004). Many researchers warn that if college students continue earning bachelor's degrees at the current pace, there will be a 14 million shortfall of college-educated working adults by the year 2020 (Carey, 2004; Carnevale & Desrochers, 2003; Crosling, et al., 2008; Kuh et al., 2006). According to Somerville and Yi (2002), of the 30 fastest-growing jobs, 70 percent will require an education beyond high school. Somerville and Yi further observe that 40 percent of all new jobs will require at least an associate's degree.

Despite this gloomy picture in the higher education sector, there is evidence (Choy, 1999; Kuh et al., 2006; Lotkowski et al., 2004; Turley, 2006; Yorke & Longden, 2004) that interest in attending college is near universal. Turley (2006) explains that regardless of their socioeconomic

status, a majority of parents want their children to go to college and graduate with a 4-year degree. Turley (2006) states that, "...this parental desire is not new. In the 1960's, surveys showed that lower-class youth valued education and that their parents wanted them to go to college" (p. 823). In the 1980's for example, 84 percent of parents of students at a community college wanted their children to obtain a 4-year degree or higher (Smith & Bers, 1989; Turley, 2006). A survey of parents of twelfth grade students in the 1990s showed that 79 percent of parents without a 4-year degree and 93 percent of parents with a 4-year degree wanted their children to get at least a 4-year degree. Additionally, even parents of students with very low grades desire their children to go to college (Turley, 2006).

As early as 1992, 97 percent of high school completers reported that they planned to continue their education, and 71 percent aspired to earn a bachelor's degree (Choy, 1999; Kuh et al., 2006; Turley, 2006). According to Kuh et al. (2006), two-thirds of those high school completers did enroll in some postsecondary education immediately after high school. In 1994, three out of four were still enrolled (Choy, 1999). Also, the pool of students is wider, deeper, and more diverse than ever (Kuh et al., 2006; Vernez, Krop, & Rynell, 1999; Zuniga, 1997). For example, women now outnumber men by an increasing margin, while more students from historically underrepresented groups are attending college.

Kuh et al. (2006) found that on some campuses, such as California State University Los Angeles, the City University of New York Lehman College, New Mexico State University, University of Texas at El Paso, and University of the Incarnate Word, students of color who were once minority are now the majority. Additionally, at Occidental College and San Diego State University, students of color now number close to half of the student body (Kuh et al., 2006). These new demographic trends notwithstanding, there is increasing concern that enrollment and persistence rates of low-income students, minority students (mostly African American, Latino,

and Native American students), and students with disabilities continue to lag behind White and Asian students, with Latino students trailing all other ethnic groups (Gonzales 1996; Gonzalez & Szecsy, 2002; Harvey, 2001; Nora et al., 2005; Swail, 2000).

There is also considerable leakage in the educational pipeline (Kuh et al., 2006). The National Center for Public Policy and Higher Education (2004) report shows that out of every 100 ninth graders, 68 graduate from high school, 40 immediately enter college, 27 are still enrolled in their sophomore year, and only 18 complete any type of postsecondary education within 6 years of graduating high school (Kuh et al., 2006). These figures probably underestimate the actual numbers of students who earn high school degrees, because they do not take into account all the students who leave one school district and graduate from another (Adelman, 2006). However, Kuh et al. (2006) warn that even if the estimates are off by as much as 10–15 percent, far too many students are falling short of their potential.

Another issue of concern is the quality of high school preparation. This appears not to be keeping pace with the interest and motivation in attending college (Chen & DesJardins, 2008; Lotkowski et al., 2004). In 2000, for example, 48 percent and 35 percent of high school seniors scored at the basic and below basic levels, respectively, on the National Assessment of Educational Progress (Kuh et al., 2006). Only five states (California, Indiana, Nebraska, New York, and Wyoming) have fully aligned their high school academic standards with the demands of colleges and employers (Achieve, 2006; Kuh et al., 2006). According to American College Testing Program (ACT, 2006), just over half (51 percent) of high school graduates have the reading skills they need to succeed in college.

The lack of reading skills is most troubling. Research shows that just 70 percent of students who took at least one remedial reading course in college do not obtain a degree or certificate within 8 years of enrollment (Adelman, 2004; Kuh et al., 2006). Recent studies (Chen

& DesJardins, 2008; Choy, 1999; Kuh et al., 2006; Lotkowski et al., 2004) show that in part, college costs that are increasing faster than family incomes are to blame for this high student withdrawal rate. For example, from 1990 to 2000, private universities raised their tuitions by 70 percent; while at public universities tuition costs increased by 84 percent (Chen & DesJardins, 2008). Even public 2-year colleges increased their tuition fees by 62 percent (Johnstone, 2005). The individuals affected most by cost increases can least afford it. Their chances of continuing with higher education diminish with time, forcing them to drop out (Carey, 2004; Chen & DesJardins, 2008; Paulsen & St. John, 2002).

Costs at public institutions increased from 27 percent to 33 percent between 1986 and 1996 for families in the bottom quartile, but only from 7 percent to 9 percent for families in the top income quartile (Kuh et al., 2006). The implication is that for each \$150 increase in the net price of college attendance, the enrollment of students from the lowest income group decreases by almost 2 percent (Chen & DesJardins, 2008; Choy, 1999). Because tuition and fees have been rising faster than family income (Kuh et al., 2006), there are also more students today with unmet financial need (Breland, Maxey, Gernand, Cumming, & Trapani, 2002; Choy, 1999). Levine and Nidiffer (1996) could not have been more accurate in their observation:

“The primary weakness of both colleges for the poor and financial aid programs is their inability to help poor kids escape from the impoverished conditions in which they grow up.... The vast majority of poor young people can’t even imagine going to college. By the time many poor kids are sixteen or seventeen years old, either they have already dropped out of school or they lag well behind their peers educationally” (P. 159).

The chances of students graduating from college may vary widely. For example, about 20 percent of all 4-year colleges and universities have been found to graduate less than one-third of their first-time, full-time, degree-seeking first-year students within 6 years (Carey, 2004; Lotkowski et al., 2004). Another glaring example of low graduation rates is provided by data from students enrolled in Florida community colleges as well as institutions participating in the

national *Achieving the Dream* project (Choy, 2002). The data suggest that an estimated 17 percent of the students starting a 2-year college either drop out or do not earn any academic credits during the first academic term (Kuh et al., 2006).

Further studies (e.g. Carey, 2004; Chen & DesJardins, 2008; Kuh et al., 2006; Nora et al., 2005; Pascarella & Terenzini, 2005) show that only about half of students who begin their postsecondary studies at a community college attain a credential within 6 to 8 years. An additional 12-13 percent transfer to a 4-year institution (Hoachlander, Sikora, & Horn, 2003). Only about 35 percent of first-time, full-time college students who plan to earn a bachelor's degree reach their goal within 4 years; 56 percent achieve it within 6 years (Knapp, Kelly-Reid, & Whitmore, 2006; Kuh et al., 2006).

Additionally, three out of five students in public 2-year colleges and one out of four students in 4-year colleges and universities require at least 1 year of remedial coursework (Adelman, 2005; Horn & Berger, 2004; U.S. Department of Education, 2004). More than one-fourth of 4-year college students who have to take three or more remedial classes drop out of college after the first year (Adelman, 2004; Community College Survey of Student Engagement [CCSSE], 2005; Kuh et al., 2006; National Research Council, 2004). It has also been found that as the number of required developmental courses increases so do the chances that the student will drop out (Burley, Butner, & Cejda, 2001; CCSSE, 2005).

Kuh et al. (2006) contend that remediation is big business. The estimated costs associated with remediation are at least \$1 billion and perhaps this figure could be as high as \$2 billion annually (Bettinger & Long, 2005; Camera, 2003; Institute for Higher Education (IHE), 1998b; Kuh et al., 2006). At the University of Nevada Reno, for example, 454 of the 2,432 first-year students took remedial mathematics at a cost of \$306 per-student (Jacobson, 2006; Kuh et al., 2006). For these and related reasons, the American College Testing Program (2005) declared that

the nation has a college readiness crisis (Kuh et al., 2006). Out of the 45 percent of students who start college and fail to complete their degree, less than one quarter are dismissed for poor academic performance (Chen & DesJardins, 2008; Kuh et al., 2006).

Most students leave for a host of other reasons. One such reason is changes in the American family structure. More students go to campus with psychological challenges that, if unattended, could have a debilitating effect on their academic performance and social adjustment (Crosling et al., 2008; Kuh et al., 2006). The country's shift to consumerism colors virtually all aspects of the college experience. Some researchers (Murtaugh, Burns, & Schuster, 1999; Turley, 2006; Young & Johnson, 2004) report that many colleges and universities are changing their admissions approach to recruit the "right students"—students with high ability, are best prepared for college and have ability to pay their way into college (Fallows, Bakke, Ganeshanathan, & Johnson, 2003; Kuh et al., 2006; St. John, 2000). This approach runs counter to the intention of the Morrill Act (1862), which established land grant colleges and universities to provide education to the masses.

In their examination of college admissions practices, Breland et al. (2002) and Kuh et al. (2006) found de-emphasis in the recruitment of underserved minorities by both 2-year and 4-year institutions. Mortenson (2005) reported that many state-supported flagship universities are admitting students mainly from high-income families. This trend is likely to have deleterious consequences for the American society at a time when more people than ever before are seeking higher education by enrolling in colleges and universities. Furthermore, since the United States is becoming more demographically diverse, there is an urgent need to not only recruit more students into colleges and universities but also to retain them to graduation (Kuh et al., 2006; Lotkowski et al., 2004; Perna, 2003; Paulsen & St. John, 1997; Vernez et al., 1999).

Whatever the reasons many students do not achieve their postsecondary educational goals or benefit at optimal levels from the college experience, the waste of human talent and potential is unconscionable (Carey, 2004; Kuh et al., 2006; Lotkowski et al., 2004). This requires more research to establish baseline data that could help higher education administrators to manage the college retention/attrition problem more profoundly. What can colleges and universities do to uphold their share of the social contract and help more students succeed? What can these institutions of higher education do to increase the apparently low graduation rates? What role can both state and federal governments play to help institutions of higher education address the apparently low retention and graduation rates?

These and many other questions need to be answered if the static graduation rates are to be jumpstarted. The lesson to learn from these data is that college student retention is a serious problem that affects many stakeholders: the institutions of higher education, the society, parents, and individual students. There is therefore increasing need for continued research into this area to establish the most appropriate way of increasing retention and graduation rates.

Overview of College Student Retention

Retention is a major factor in institutions' credibility and financial stability (Crossling et al., 2008). A greater emphasis is being placed on retention and attrition in higher education in the United States (Carey, 2004; Patton, Morelon, Whitehead, & Hossler, 2006). While the lack of persistence behavior and withdrawal are problems with undergraduate students in general, they are particularly so for minority students. African American, Hispanic, and Native American students complete college at lower rates than Caucasian students (Synder, 1999). The national statistics show that in recent years, an average of between 25 and 30 percent of students do not return to their initial college of admission for their sophomore year (Chen & DesJardins, 2008; Mortenson, 2003; U.S. Department of Education, 2006). Furthermore, six years later, less than

50 percent of college-bound students will have graduated (Ashby, 2003; Astin & Oseguera, 2000; Branch, 2001; U.S. Department of Education, 2006).

According to Tinto (1993), "Institutions have come to view the retention of students as the only reasonable course of action left to insure their survival, and a growing number have turned their energies in that direction with renewed passion" (p.2). Tinto (1987) pointed out that over half of all entering students are likely to leave before they complete their first years (Hodum, 2007; Muckert, 2002). It is estimated that American colleges and universities lose approximately 1 billion dollars a year from first-year attrition (Kuh et al., 2006; Lotkowski et al., 2004; U.S. Department of Education, 2006). The losses from increased earnings as a result of not securing a degree for each cohort of students that drops out of college totals more than 4 billion dollars (Kuh et al., 2006; Perna, 2003; Swail, Redd, & Perna, 2003).

Research shows that individuals most likely to drop out of college are the low income, minorities and first generation college students (Chen & DesJardins, 2008; Choy, 1999; Murtaugh, Burns, & Schuster, 1999; Noel, 1991; Patton et al., 2006). National statistics indicate that up to 40 percent of students are inadequately prepared for college (Boylan, 1995; U.S. Department of Education, 2006). What is disturbing is the apparent disparity along ethnicity. For example, out of the inadequately prepared student cohort, about 40 percent of white students and 70 percent of African American students drop out of college because of the lack of preparation, or because of lack of academic and/or social support during their first year in college (Tinto, 1975; U.S. Department of Education, 2004).

In broad terms, retention is the ability of a particular college or university to successfully graduate the students that initially enroll at that institution (Bean, 2005). Bean (2005) and Seidman (2005) explain that college student retention can be examined from at least four perspectives. From the *theoretical* perspective, retention is something that has to be explained.

Theoretical models contain factors linked by explanatory theories that lead to student decisions to remain in college or leave (Bean, 2005). “From the *policy* perspective, governments and others study policies related to access to college and how different types and amounts of funding affect retention. Institutional policies are made based on judgments about how academic and other programs or activities affect retention. From the *institutional* research perspective, retention research focuses on students attending single institutions” (Bean, 2005, p. 215).

Bean (2005), St. John (2000), and Tinto (1993) explain that research attempts to determine the effectiveness of retention programming or the reasons why students stay at or leave a particular institution. The *individual* perspective emphasizes the background characteristics, institutional experiences, student behavior, and attitudes that interact to affect retention decisions (Bean, 2002, 2005; Seidman, 2005; St. John, 2000). In this study, emphasis will be placed on the individual and institutional research perspectives.

Globalization, with its accompanying socioeconomic, demographic, and technological changes, is having a significant impact on the United States’ workforce and its postsecondary institutions (Kwiek, 2001; Lotkowski et al., 2004). To continue to successfully compete in the global economy, the United States needs an even more highly educated and skilled workforce than now exists (Lotkowski et al., 2004; Patton et al., 2006). Such a workforce must be able to adapt to the needs of a rapidly changing and more technically demanding global work environment (Perrons, 2004). Today, six out of every ten jobs require some postsecondary education and training (Carnevale & Desrochers, 2003; Lotkowski et al., 2004; Yorke & Longden, 2004). By 2012, it is estimated that the number of jobs requiring advanced skills will grow at twice the rate of those requiring only basic skills (Hecker, 2004; U.S. Department of Labor, 2000).

According to Lotkowski et al. (2004), for the United States to maintain its competitive economic edge, its workforce must have education and training beyond high school. Achieving this objective requires that colleges and universities do not only attract a large number of students to their campuses, but they also retain the enrolled students to graduation (Lotkowski et al., 2004; Nora et al., 2005). The demographic composition of the United States is also changing (Vernez et al., 1999) at a rapid pace. Hispanics are now the largest and fastest-growing minority population, constituting over 50 percent of all foreign-born Americans and 13 percent of the total United States population (Lotkowski et al., 2004).

Additionally, African Americans now also represent 13 percent of the U.S. population (Vernez et al., 1999; U.S. Census Bureau, 2001). Projections indicate that within 30 years, Hispanics and African Americans will constitute over one-third of the United States population (U.S. Census Bureau, 2002; Vernez et al., 1999). Given these economic and demographic changes, more and more students will need a college education if the country is to maintain and advance its labor force (Carey, 2004; Kuh et al., 2006; Lotkowski et al., 2004; U.S. Department of Education, 2004).

In comparative terms, the United States is more educated than other world nations (Carey, 2004; Lotkowski et al., 2004; Yorke & Longden, 2004). Even though high school graduation rates have increased, obtaining a high school diploma does not guarantee access to secure employment in today's knowledge-based economy (Kuh et al., 2006; Lotkowski et al., 2004; Paulsen & St. John, 2002). Carey (2004) and Lotkowski et al. (2004) point out that since economic opportunity in the United States is increasingly based on postsecondary education, those who lack a college degree can face tremendous barriers to employment and success throughout their lives. Lotkowski et al. (2004), in their American College Testing (ACT) Policy Report showed that in 2003, the average national unemployment rate for individuals 20-24 years

of age at all education levels was 10 percent. Their report further indicates that individuals with a bachelor's degree had an average unemployment rate of 6 percent while those with a high school diploma or less had an average unemployment rate of 14 percent.

The U.S. Department of Labor's (2000) report shows that unemployment for the minority groups (African Americans, Hispanics, and Native Americans) is highest for those with a high school diploma or less, while racial differences in unemployment are statistically insignificant among all individuals holding bachelors' degrees. For example, in 2000, the median annual income of individuals aged 25 years old and over with a bachelor's degree was 60 percent more than the median income of individuals in the same age bracket with a high school diploma (U.S. Department of Education, 2001). Over a lifetime, the gap in earnings between those with a high school diploma and those with a bachelor's degree or higher exceeds one million dollars (Lotkowski et al., 2004; U.S. Department of Education, 2003).

Postsecondary education is the key to a stronger workforce for any country and a better quality of life for individual citizens (Carey, 2004; Crosling et al., 2008; Kuh et al., 2006; Kwiek, 2001; Lotkowski et al., 2004; World Bank, 1997; Yorke & Longden, 2004). Better educated people have greater chances of obtaining secure jobs that provide opportunities for advancement, pay higher wages, and offer greater health and retirement benefits than do those who are less educated (Barfield & Beaulieu, 1999; Carey, 2004; Lotkowski et al., 2004). In the United States, access to and participation in postsecondary education has increased tremendously. However, recent studies (Carey, 2004; Harvey, 2003; Ishitani & DesJardins, 2002; Kuh et al., 2006; Landry, 2002; Lotkowski et al., 2004), show that college student retention and graduation rates are still low across the entire country.

Furthermore, minority groups are still lagging behind in higher education achievement. For example, in 1999-2000, four-year college enrollment among Caucasian high school

graduates was 46 percent. In the same academic year, only 40 percent and 34 percent of African Americans and Hispanics respectively enrolled (Harvey, 2003; U.S. Department of Education, 2003). It is also evident that only 55 percent of all undergraduates who began their studies at a given four-year institution in 1995-96 with the goal of a bachelor's degree completed that degree within six years at the same institution (U.S. Department of Education, 2006). The statistics further reveal that out of that cohort, 59 percent of Caucasian students completed their degree while 41 percent of both African American and Hispanic students persisted to graduation (U.S. Department of Education, 2002, 2006).

While getting students into college is important, retaining and helping them complete their degree work within the four- or six-year stipulated time period is just as vital to the economic and social health of the nation (Education Commission of the States, 2004; Lotkowski et al., 2004; U.S. Department of Education, 2006). To remain competitive in the global economy, there is an increasing need for countries to enable a greater percentage of their college-age population to enroll in postsecondary education and complete a degree in a timely fashion (Crosling et al., 2008; Kuh et al., 2006; Kwiek, 2001). There is no doubt that the United States has made significant advances in high school graduation rates. However, improvement is still needed in retention and graduation rates in postsecondary education (Carey, 2004; Lotkowski et al., 2004; Murtaugh, Burns, & Schuster, 1999).

In the face of changing workforce and educational requirements, the need to retain more students will only intensify (Murtaugh et al., 1999). Low retention rates waste human talent and resources, jeopardize the country's economic future, and threaten the economic viability of colleges and universities (Young & Johnson, 2004). The net effect is an imminent threat to the democratic traditions and ideals that underlie the very existence of the United States (Carey, 2004; Lotkowski et al., 2004; Seidman, 2005). Given both workforce projections and rapidly

changing demographics (Vernez et al., 1999; Kuh et al., 2006; U.S. Department of Education, 2006; U.S. Department of Labor, 2000), the United States needs to continuously strive to increase the number of well-prepared college-educated students who will enter the labor force over the next few decades (Crosling et al., 2008; Kuh et al., 2006; Lotkowski et al., 2004; Yorke & Longden, 2004).

Understanding the factors that influence college students either to re-enroll in or withdraw from college is crucial in the search for intervention measures by institutions of higher education. Higher education administrators are likely to organize strategies and programs that will increase retention and graduation rates if they are aware of the factors considered important in the student departure process. Such programs and policies will help students to prepare for and successfully complete postsecondary education (Bean, 1985; Braxton, Hirschy, McClendon, 2004; Cabrera, Castaneda, Nora, & Hengstler, 1992). Furthermore, college education will help the U.S. to remain a world economic leader. To be able to develop programs for helping retain students “at risk” of dropping out of college, higher education administrators require adequate and relevant information (Seidman, 2005) on the factors considered important in precipitating student departure.

History of College Student Retention

American colleges have been in existence for over 300 years and continue to be among the most respected postsecondary institutions in the world (Berger & Lyon, 2005). Berger and Lyon (2005) provide an apt characterization of the dynamic nature of retention in the United States higher education system. They assert thus:

“Throughout the course of its life, the American higher education has withstood changes in mission, curriculum, students, and financing. These changes have affected the nature of retention in terms of patterns of retention, institutional concern about retention, the ways in which retention has been conceptualized and studied, and the range and types of strategies that have been used to try to improve retention” (p. 8).

Examining literature on the historical development of retention provides a basis for identifying distinct historical stages that inform the evolution of retention over time in the United States higher education system. The historical eras that provide a means through which retention can be viewed and understood are highlighted (Berger & Lyon, 2005; Crosling et al., 2008). Each era is divided into chronological segments represented by unequal time periods. According to Berger and Lyon (2005), each era represents common themes that evolved over time.

The first four eras (retention prehistory, evolution of retention, early developments and dealing with expansion) covering almost 330 years represent the precedents that underpin the emergence of retention as a distinct issue to be addressed, studied, and improved in higher education (Berger & Lyon, 2005). These four eras are collectively labeled as *retention prehistory*, characterized by little concern with student retention in any systematic way. Berger and Lyon (2005) point out that the last five eras (preventing drop outs, theory building, managing enrollments, broadening horizons, and current and future trends) cover the last thirty years. “This represents the time period in which retention gained a universal concern across the higher education landscape and in which the practical, theoretical, and knowledge bases became more fully developed” (Berger & Lyon, 2005, p. 9).

Currently, college student retention is of great interest to higher education institutions the world over (Berger & Lyon, 2005; Yorke & Longden, 2004). For many centuries the issue was not considered important because few students attended colleges and even fewer students had interest in graduating. Colleges in colonial America, for instance, struggled to attract students with little concern for persistence toward achieving a degree at the end of the study (Berger & Lyon, 2005).

Furthermore, college degrees were of little or no importance to the early American society. In fact, Berger and Lyon (2005) posit that higher education was such a small enterprise

that college student persistence was not considered an issue. “For the majority of colonial families, college was a luxury, not a necessity, and since there were no formal admission requirements, it was something that could wait” (Berger & Lyon, 2005, p. 10). Colleges were chartered in the newly free states (Maryland, South Carolina, North Carolina, and Vermont) after the American Revolution. Berger and Lyon (2005) explain that it took a long time before the infrastructures of colleges were organized well enough to attract significant numbers of students.

College enrollment expanded rapidly throughout the 1820s and 1830s. The rapid increase in enrollment is attributed to the phenomenal expansion of denominational colleges (Berger & Lyon, 2005). The development of retention in the United States higher education can be divided into nine eras (see Table 2.1).

Table 1

Nine Eras Representing Development of College Student Retention.

HISTORICAL EVENTS	TIME PERIOD
1. Retention Prehistory	1660s – Mid-1800s
2. Evolving toward Retention	Mid-1800s – 1900s
3. Early Developments	1900-1950
4. Dealing with Expansion	1950s
5. Preventing Dropouts	1960s
6. Building Theory	1970s
7. Managing Enrollments	1980s
8. Broadening Horizons	1990s
9. Current and Future Trends	Early Twenty-First Century

Source: Berger & Lyon (2005).

According to Berger & Lyon (2005), the first four eras cover the precedents that led to the emergence of retention as a distinct issue to be addressed, studied, and improved throughout higher education. These first four eras cover almost 330 years, most of which are covered by the era labeled “Retention Prehistory.” The most significant feature of these four eras was the little concern with retention in any systematic way until the beginning of the twentieth century (Berger & Lyon, 2005). The last five eras cover the last thirty years that represent the period of time in which retention became a universal concern across the higher education landscape. It is also the time that witnessed full-scale development of the practical, theoretical, and knowledge bases (Berger & Lyon, 2005).

Berger and Lyon (2005) observe that for many centuries there was no need to consider the issue of college student retention because so few students attended college and even fewer students were interested in graduating. Colleges in colonial America struggled to maintain even small enrollments and were primarily concerned with attracting students while the college had little or no interest in persistence of the students toward graduation (Berger & Lyon, 2005). College degrees had little or no importance in the early American society.

Moreover, higher education was such a small enterprise that there was no reason to consider persistence toward a degree as an issue. Furthermore, these earliest postsecondary institutions catered to very specific populations (Berger & Lyon, 2005). For example, the earliest U.S. colleges, Harvard (1636), William and Mary (1693), and Yale (1701), were established as extensions of respective churches with the goal of educating young men to satisfy the local demand for pastors and missionaries among various Christian religions (Bean, 2005).

According to Murtaugh et al. (1999), the issue of how to retain students at colleges and universities has long been a concern of educators. Published work on student retention, as

Murtaugh et al. (1999) explain, has focused on several themes. The following are some of the themes:

- (1) The relationship between pre-college characteristics of freshman students (e.g., high school GPA, ACT/SAT scores) and their success at college or university;
- (2) The causes of student attrition, with recommendations to colleges and universities for interventions to reduce the rate of student withdrawal before graduation;
- (3) Evaluation of specific campus programs designed and implemented to improve retention of students in general; and
- (4) The relationship between innovative or improved teaching techniques and student retention (p. 355).

Murtaugh et al (1999) contend that studies on pre-college characteristics have yielded useful results to colleges and universities. Most of them have led to the predictions of college student withdrawal thus having direct implications for the recruitment of students. Murtaugh et al. (1999) posit that although the studies of pre-college characteristics have yielded useful information, they do not explain all of the variation in college student departure rates. Astin (1993), Naretto (1995), and Tinto (1993) found that students are likely to persist in college when they are actively engaged in campus activities and thus feel a sense of community in the institution.

Student Dropout from Higher Education Institutions in the United States

According to Townsend (2006), the issue of student retention in higher education is an ongoing problem. Townsend further states that in an effort to alleviate this problem, colleges and universities invest in a variety of programs designed to improve student retention. Seidman

(2005) explains that even though a great amount of time and money is invested in retention efforts, current college student retention rates have not improved over time. Penalber (2005) observes that federal programs such as Student Support Services are used to give students additional support in order for them to complete their college education programs.

Each year beginning in 1983, American College Testing (ACT) has reported aggregated student dropout data from most U.S. colleges and universities (Muckert, 2002). Their latest annual report (American College Testing, 2008) summarizes student dropout data collected between 1983 and 2007 from 2534 two-year and four-year colleges and universities. These ACT reports define dropout as the percentage of first-year college students who do not re-enroll for a second year of study in their first enrolled institution (ACT, 2008; Lotkowski et al., 2004; Muckert, 2002).

According to the ACT (2008) data, approximately 32 percent of first-year students in four-year institutions do not return for a second year of study. These rates are worse for students attending public (with an average retention rate of 67.6 percent across the twenty four-year period) than private (with an average retention rate of 70.2 percent across the twenty four-year period) institutions (ACT, 2008). Even though there may be debate as to whether the ACT data under- or over-estimates retention rates, the general consensus is that there are no clear cut trends directed at improving retention of students at the U.S. four-year institutions. Whatever the case, these figures point to a grim picture of the trends in national college completion rates.

Hodum (2007) points out that there has been tremendous amount of research on student retention in higher education. The literature spans from Johnson's (1926), *Predicting Success in College at Time of Entrance* (cited in Hodum, 2007), Seidman's (2005), *College Student Retention: Formula for Student Success*, to Pascarella and Terenzini's (2005), *How College Affects Students*, and beyond. Historically, empirical research has yielded considerable insight

into understanding why some students leave college and why some students stay (Astin, 1993; Hodum, 2007; Naretto, 1995; Tinto, 1975).

Swail, Redd, and Perna (2003) found that half of all students entering higher education are likely to drop out of college before completing a degree. In recent times, a significant concern in higher education has been the retention of students in their studies. Institutions worldwide are under increasing pressure to reduce the rates of students dropping out and develop new and innovative means that encourage students to continue (Crosling et al., 2008; Murtaugh, Burns, & Schuster, 1999; Thomas & Quinn, 2003). Tinto (1996) reported that approximately 57 percent of college dropouts leave before the start of the second year. Withdrawing from college before earning a degree can adversely affect an individual's quality of life since great value is placed on obtaining a college education (Swail, et al., 2003). Such significant departure from higher education not only affects individuals but society as well.

According to Betts (2003), Habley and McClanahan (2004), Hodum (2007), Lau (2003), Murtaugh et al. (1999), and Naretto (1995), some researched variables that contributed to dropout of students from colleges include: difficulties in a residential hall, unfavorable social atmosphere, inadequate student involvement in campus life, problems with the curriculum, poor student-institution fit, part-time student status, pre-college characteristics, and lack of sufficient financial aid. Other factors include inadequate pre-college preparation, age, gender, student abilities, and parental influence. Research further indicates that academic advising, student academic integration, college performance, student commitment to the institution, continuous enrollment, attendance at a four-year institution, student ability, family income, and full-time enrollment are some of the factors that can increase retention and lead to graduation (Cabrera, Nora, & Castaneda, 1993; DuBrock 1999; Hodum, 2007; Ishitani & St. John, 2000, 2002; Murtaugh et al., 1999; Thomas, 1990; U.S. Department of Education, 2004).

With this knowledge of negative and positive variables, it would appear that the problem of college student retention could easily be solved. On the contrary, various educational researchers indicate that college student retention remains a very complex problem (Astin, 1984; Braxton, 2000a; Cooper, 2002; Crosling et al., 2008; Tinto, 1993) that has many pieces of the puzzle yet to be unraveled (Braxton, 2000, 2000b). It has not been solved, but a greater understanding has been gained due to previously conducted research (Tinto, 1975, 1987, 1996).

Yet “successful retention efforts are difficult to mount, if only because of our continuing inability to make sense of the variable character of student departure” (Tinto, 1993, p. 2). Researchers and stakeholders continue to be concerned with student retention issues because there are still many unanswered questions: Why do almost one third (32 percent) of the freshmen attending all categories of higher education institutions not re-enroll for the second (sophomore)-year in their initial institution (ACT, 2008)? Why are just over half (52 percent) of those attending a four-year college completing their bachelor’s studies in five years or less (ACT, 2008)?

Some studies (Choy, 2002; Elkins, Braxton, & James, 2000; Hodum, 2007; Muckert, 2002; Seidman, 2005; Upcraft & Gardner, 1989) have reported that since most students leave college during their first and second years (and most within the first six weeks of the enrolled semester), the integration and retention of new students must be the focus of college student success efforts. With current completion rates at four-year BA/BS public colleges and all categories of two-year colleges at the lowest level in more than twenty years, this concern over retention rates is warranted (Crosling et al., 2008; Habley & McClanahan, 2004; Hodum, 2007; Lotkowski et al., 2004).

This low point has occurred at a time when obtaining a college degree is increasingly becoming more important (Choy, 2002; Crosling et al., 2008; Hodum, 2007). Levin (1972) and

Baum and Payea (2004) pointed out that higher education provides numerous benefits to both individuals and society: There is a correlation between higher levels of education and higher earnings for all racial/ethnic groups and for both men and women. The income gap between high school graduates and college graduates has increased significantly over time. Any college experience produces a measurable benefit when compared with none, but benefits of completing a bachelor's degree or higher are significantly greater (Carey, 2004; Hodum, 2007; Lotkowski et al., 2004).

Higher levels of education also correspond to lower levels of unemployment and poverty, generating decreased demand on public budgets (World Bank, 1997). College graduates have lower smoking rates, more positive perceptions of personal health, and lower incarceration rates than individuals who have not graduated from college (Crosling et al., 2008). Higher levels of education also correlate with higher levels of civic participation. Carey (2004) points out that retention not only impacts college students, but also can contribute positively to the society by increasing the number of college graduates.

College Student Retention: Theoretical Framework

Scholars have studied college student retention for over seventy years (Astin, 1993; Braxton, 2000a; Braxton & Hirschy, 2005). The last three decades have produced the greatest understanding of this nettlesome problem (Murtaugh et al., 1999). Researchers have conducted studies using economic (Cabrera, Stampen, & Hansen, 1990; St. John & Noell, 1989), organizational (Bean, 1980, 1982), psychological (Brower, 1992; Stage, 1989), and sociological (Rootman, 1972) theoretical perspectives. However, it is Tinto's interactionalist theory of college student departure that enjoys a paradigmatic stature (Braxton & Hirschy, 2005; Braxton, Hirschy, & McClendon, 2004). Despite all these theories of college student retention, critics have pointed out that a full understanding of the problem of student departure remains obscure

(Braxton & Hirschy, 2005). Thus, a multi-theoretical approach to reducing institutional rates of student withdrawal is needed because college student departure is best characterized as an ill-structured problem (Bean, 2005; Braxton & Hirschy, 2005; Braxton & Mundy, 2001, 2002).

Economic, psychological, organizational, and sociological theories (Tinto, 1987) may be used to explain college student departure. In this review, not all theories of student departure will be included. Only examples of conceptual models grounded in a range of disciplinary literature bases will be presented.

Significant Theories on Attrition/Retention

The main question is: why do approximately one-third of university students in the United States not re-enroll in the second year of their course of study? A number of theoretical models on student dropout have been advanced to try to explain the possible reasons for student withdrawal (Braxton & Hirschy, 2005; Hodum, 2007; Muckert, 2002). Although retention was first defined in the literature as a problem in the 1920s (Minnesota University, 1924), McNeely's (1937) *College Student Mortality* was the first to study variables like time to completion and institution size as they relate to retention. Surprisingly, these early studies did not provide the main foundation for the prevalent research on student retention (Hodum, 2007; Purdie, 2007).

The foundation of modern-day theories on student retention was laid by a French sociologist called Emile Durkheim (Hodum, 2007). Durkheim (1951) theorized that suicide was the product of a lack of relationship between individuals and society. "Durkheim demonstrated that the rate of suicide in a society was associated with the degree of social integration and not with race, heredity, cosmic or psychological factors" (Hassan, 1998, p. 168). According to Lester (1992) and Hodum (2007), Durkheim's theoretical framework posited that suicide varies inversely with the degree to which an individual socially integrated with his/her social group. Durkheim's sociological framework of suicide provided the foundation upon which Spady

(1970, 1971) and Tinto (1975, 1987, 1993) established their conceptual frameworks for student attrition/retention (Hodum, 2007).

Tinto (1993) proposed three categories of college student attrition theories. These are psychological, environmental, and interactional theories (Muckert, 2002). Psychological theories concentrate on individual factors influencing student retention. According to these theories, student withdrawal is viewed as a result of some weakness in the individual (Tinto, 1993). Muckert (2002) cites Dannels (1993), Erickson (1959, 1963, 1968), and Chickering (1969) as the leading voices in the promotion of psychological theories of student attrition. Tinto (1993) points out, however, that research has not been able to identify a departure prone personality or other personal characteristics that are associated with student withdrawal (Muckert, 2002). According to Tinto (1993), such theories tend to ignore the fact that individual behavior is a function of the environment in which individuals operate much the same as the students' personal dispositions. Environmental theories focus on the social, economic, and organizational forces affecting student retention (Muckert, 2002; Tinto, 1993).

Spady's Theory of Student Departure (1970, 1971)

Spady (1970, 1971) believed that although research had been conducted on college student attrition/retention, it was not based on theory. Spady (1970) utilized the correlation between Durkheim's (1951) conceptual framework concerning suicide and his model for students leaving college to develop a theory about college student departure (Hodum, 2007).

According to Summers (2003, p. 2),

“Spady perceived a parallel process occurring in college students who dropped out, albeit not as drastic as suicide. Students who did not share values and orientations similar to other students, did not interact socially with other students, and generally did not feel compatible with the social system of college, were more likely to drop out.”

According to this perspective, students who did not gain a sense of belonging to the institution felt isolated, consequently running the risk of dropping out of college (Hodum, 2007; Seidman, 2005; Tinto, 1993). Spady in his studies concluded that student attrition occurs because of a difficulty or absence of compatibility between the student's satisfaction and institutional commitment, normative congruence, academic potential, previous educational history, friendship support, intellectual development, academic performance, social integration, and family background (Armstrong, 1994; Bean, 2005; Hodum, 2007; Muckert, 2002). Summers (2003) and Armstrong (1994) credited Spady for being the earliest and one of the best-known researchers concerning the problem of college student withdrawal/retention.

Tinto's Interactionalist Student Departure Model (1975, 1987, 1993)

Tinto (1975, 1987, 1993) has been credited with refining, developing, linking, extending, and adapting Durkheim's (1951) suicide model and Spady's (1970, 1971) sociological dropout model in the development of his Interactionalist Theory of Student Departure (Habley & McClanahan, 2004; Pascarella & Terenzini, 2005; Pascarella, Terenzini & Wolfle, 1986; Summers, 2003; Thomas, 2000). Tinto's conceptual model of student departure has been the most popular, influential, and used construct in guiding college student retention research (Braxton, 1999; Braxton & Hirschy, 2004; Braxton, Sullivan, & Johnson, 1997; Hodum, 2007; Pascarella & Terenzini, 2005; Townsend, 2006). Moreover, Tinto's Student Integration Model provided one of the two comprehensive frameworks on college departure decisions (Cabrera, Nora, & Castaneda, 1993; Hodum, 2007; Seidman, 2005).

Tinto (1975, 1987, 1993) theorized that student departure is a longitudinal process that happens because students are weakly linked to the academic and social systems of the institution (Figure 1). Tinto suggested in his model that students' individual skills and background characteristics determine how well the students will adjust and commit to the college

environment. Tinto further emphasized in his model that the initial commitment of a student to the institution was related to a process of interactions between trait variables (“skills, financial resources, prior educational experiences and dispositions” (Tinto, 1993, p. 113) and the academic and social groups within an institution. Students’ commitment to their institutions could be cultivated through facilitating academic and social integration (Braxton & Hirschy, 2005; Hodum, 2007; Muckert, 2002; Murtaugh et al., 1999; Nora et al., 2005).

Kuh and Love (2000) and Hodum (2007) point out that Tinto’s academic integration represents the extent to which students are performing reasonably well in their classes. It also represents the perception students have of their classes, how relevant and of what practical value the classes have to their long term careers. Kuh and Love (2000) explain that social integration refers to students’ levels of social and psychological comfort with their colleges’ milieus, association with or acceptance by affinity groups, and sense of belonging that provides the security needed to join with others in common causes, whether intellectual or social. In expanding his interactionalist theory of college student departure, Tinto (1975, 1987, 1993) aimed at creating additional understanding of student anomie, personal unrest, alienation, and uncertainty (Hodum, 2007; Muckert, 2002; Purdie, 2007). To accommodate this, Tinto linked Van Gennep’s (1960) *Rites of Passage* to his adjusted model that now included a separation phase, transition phase, and incorporation phase. Tinto connected these phases to the process through which college students establish membership in the communities (retention) or to the case of student departure (Braxton & Hirschy, 2005; Elkins, Braxton, & James, 2000).

In presenting his model, Tinto (1993) maintained that:

“It is possible to envision the process of student persistence as functionally similar to that of becoming incorporated into the life of human communities generally and that this process, especially in the first year of college, is marked by stages of passage, through which individuals must typically pass in order to persist in college” (p. 94).

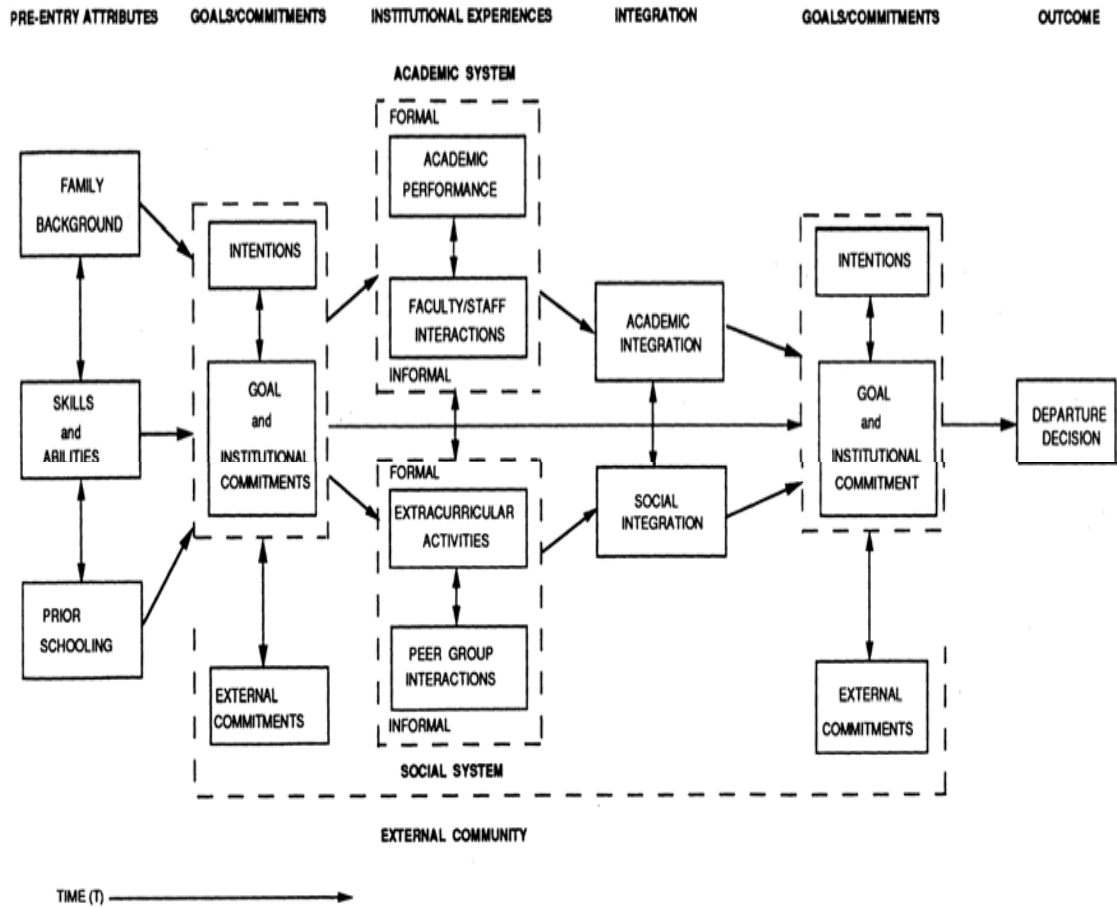


Figure 1. Longitudinal Model of Individual Student Departure (Tinto 1975, 1987, 1993).

According to Braxton & Hirschy (2005), Hodum (2007), Purdie (2007), and St. John (2000), Tinto posited in his theory that when students depart from an institution, that departure results from a longitudinal process of interactions between the students, specific attributes, intentions and commitments to members of the academic and social system. “Though the presence of interaction does not by itself guarantee persistence, the absence of interaction almost always enhances the likelihood of departure” (Tinto, 1993, p. 117). Tinto believed that constructive integration helped students to have higher goals and thus strengthen commitments to those goals and the institution they were attending. Having higher goals motivates students to perform well academically (Allen & Robbins, 2008).

In their study, *Appraising Tinto’s Theory of College Student Departure*, Braxton, Sullivan, and Johnson (1997) examined the thirteen primary propositions derived from Tinto’s longitudinal theoretical model. They reported strong empirical support for some propositions and only partial support for others. Tinto (1975) posited, “Informal peer group associations, extracurricular activities, and interactions with faculty and administrators are mechanisms of social integration” (p. 107). However, the support for Tinto’s theory with regard to the institutional type is still an open question for research (Braxton, Hirschy, & McClendon, 2004). Braxton, Sullivan, and Johnson (1997) explained that the possible shortcomings in Tinto’s theory may not provide adequate grounds for dismissing it. The gaps may point to opportunities for creating stronger theory.

Astin’s Input-Environment-Outcome Model of Involvement

One of the earliest scholars to develop theoretical frameworks on college student retention/dropout, Astin (1970) proposed one of the first, most durable and influential college impact models. His model is commonly known as input-environment-outcome (I-E-O) model. Pascarella and Terenzini (2005) posit that Astin’s determination led him to discover measurable

variables as they relate to reducing student dropout. His purpose in developing the input-environment-outcome model was to evaluate the conditions under which students respond to different environmental influences (Hodum, 2007).

Astin's (1970) model used the 146 inputs (characteristics of students at the time of initial enrollment) that are a standard part of retention studies (Hodum, 2007; Muckert, 2002; Pascarella, 1985; Tinto, 1987, 1993). According to Crissman (1999), Astin's (1970) model also used 192 environmental variables classified into seven categories: "institutional characteristics, student characteristics, faculty characteristics, curriculum, financial aid, residence status, and performance outcomes" (p. 21). Student behavioral outcome was a function of input variable(s) plus environmental variable(s). Astin (1984) classified 82 outcomes that result from student characteristics interacting with the college environment. Astin (1984) states that "student involvement refers to the amount of physical and psychological energy a student devotes to the academic experience" (p. 297).

Astin's (1984) theory of involvement has five postulates (p. 298) as follows:

1. Involvement refers to the investment of physical and psychological energy in various objects. The objects may be highly generalized (the student's overall college experience) or very specific (preparation for a chemistry test).
2. Regardless of its object, involvement occurs along a continuum; that is, different students manifest different degrees of involvement in a given subject (e.g., some like and study math much more than others do), and the same student can manifest different degrees of involvement in different objects at different times (e.g., in one week students may be highly involved in, say, football-related activities, whereas in another week, they may be focused on studying for final semester exams).
3. Involvement has both quantitative and qualitative features. The extent of a student's involvement in academic work, for example, can be measured quantitatively (e.g., the number of credit hours student carries in a semester) and qualitatively (e.g., the overall grasp of the course content).
4. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program (as measured by student's cumulative college GPA).
5. The effectiveness of any educational policy or program is directly related to its capacity to increase student involvement.

Astin (1970, 1985, 1993) revealed that the more students were involved with their institution, the higher the probability of student retention. Hodum (2007) and Jacobi (1991) point out that Astin's Input-Environment-Outcome Model and Tinto's Student Integration Model have common characteristics and are often used interchangeably. Jacobi (1991) emphasized, however, that Astin's (1970) Involvement-Environment-Outcome model focused on student behavior, with attitude and affect being secondary concerns. In contrast, she explained how Tinto's Integration Model focused on students' attitudes and feelings about their experience with behavior being a secondary concern.

Intervention Programs

While student behavior is an integral piece to the retention puzzle, "institutions must continually assess their actions with an eye toward improvement" (Tinto, 1993, p. 152). Pascarella and Terenzini (2005) state that, "as pressures have grown on public and private institutions to increase retention and degree completion, so has the research examining the effectiveness of programmatic interventions designed to promote outcomes" (p. 398). Intervention strategies provided alternative perspectives of attrition/retention that had the potential to significantly influence students (Brawer, 1996; Hodum, 2007). McIntire (1992) maintained that a single intervention program was inadequate to deal with the numerous academic and social integration issues related to student retention (Hodum, 2007).

Although there are numerous noteworthy intervention programs, only four will be reviewed. These are programs that current research has examined for effectiveness: (1) academic advising, (2) developmental studies, (3) freshman programs, and (4) learning communities. Pascarella and Terenzini (2005) observed that, "These interventions vary considerably in content, structure, and duration making synthesis of the research on their effectiveness difficult" (p. 398).

Academic Advising

Some researchers (Hodum, 2007; Noel & Saluri, 1985) argue that academic advising is the only structured activity on the college campus in which all students have the opportunity to interact one-to-one with a representative of the institution. Astin (1993) for example, found that the retention of students was strongly influenced by meaningful interaction students developed with staff, faculty, and peers. Other studies have also shown that poor student integration with the college community, student's lack of clear academic or career goals, uncertainty, adjustment and isolation problems create the atmosphere for withdrawal to occur (Bean, 1980; Tinto, 1987). Thomas (1990) concluded that academic advising was the most important variable when considering persistence. Rendon's (1995) study corroborated those findings by concluding that constructive advisement between students and college personnel during their first term facilitated persistence (Hodum, 2007).

Research has shown that students who receive effective academic advising tend to feel positive about the institution and thus have an increased retention rate (AASCU, 1997; Ward-Roof & Hatch, 2003). Seidman (1991) determined that students receiving pre and post admissions advisement were 20 percent more likely to persist than their counterparts who did not receive advisement. Additional studies (e.g., Beil, 1990; Braxton, Hirschy, & McClendon, 2004; Elliott & Healy, 2001; Peterson, Wagner, & Lamb, 2001; Steele, Kennedy, & Gordon, 1993) have shown that students who participated in advising programs persisted in college. Noel and Saluri (1985) (as cited in Hodum, 2007) maintained that people who come face-to-face with students on a regular basis provide positive growth experiences for students. These experiences help students to identify their goals and talents that they eventually learn to use. The caring attitude of college personnel or lack thereof is considered the most potent retention force on campus.

Developmental Studies

Developmental studies and other remedial education programs have a long history. Programs have existed since 1849 to help under-prepared college students and yet research has struggled to establish their effectiveness (Brier, 1984). However, Haeuser (1993), Kulik, Kulik, and Shwalb (1983), Nora et al. (2005) and Walleri (1987), concluded that developmental education programs help college students persist. Weissman, Silk, and Bulakowski (1997) in their study, revealed that under-prepared students who took remedial courses experienced greater success and persisted longer than under-prepared students who did not take remedial classes.

These findings have been confirmed more recently by Nora et al. (2005) in their research on student persistence and degree attainment beyond the first year in college. “Findings strongly support the formulation of intrusive policies that require under-prepared students to complete their developmental course work prior to or concurrently with enrollment in college level courses” (Castator & Tollefson, 1996, p. 179).

From their research, Weissman, Silk, and Bulakowski (1997, p. 199) proposed the following recommendations:

- a) Skill-deficient students should be required to remediate.
- b) Skill-deficient students should be required to begin their programs of remediation upon initial enrollment.
- c) Skill-deficient students should be allowed to take college-level courses before completing their programs of remediation as long as they are simultaneously working on remediating.
- d) Language-deficient and triple-deficient students should be strongly encouraged to focus on their programs of remediation before beginning college-level courses.

There is evidence that developmental studies and other remedial programs have a positive impact on college student retention (Astin, 1970; Tinto, 1993; Weissman et al., 1997).

Freshman Programs

Programs that provide experience for freshmen are multi-faceted in nature and aim at encouraging retention, academic success, and completion of programs of study (Hodum, 2007).

Barefoot (2000, p. 14) outlines six overall objectives that are research-based:

- (a) Increasing student-to-student interaction.
- (b) Increasing faculty-to-student interaction, especially out of class.
- (c) Increasing student involvement and time on campus.
- (d) Linking the curriculum and the co-curriculum.
- (e) Increasing academic expectations and levels of academic engagement.
- (f) Assisting students who have insufficient academic preparation for college.

The first objective is strongly supported by Astin's (1993) research. Astin (1993) argued that students' peer groups have the most powerful influence on their development. Davig and Spain (2004) found support for Tinto's Model of integration in first-year seminars due to topics and activities supporting social networking and integration into the institution. Research (e.g., Bean, 2005; Bean & Eaton, 2000; Braxton, 2000a; Hodum, 2007; Muckert, 2002; Purdie, 2007; Tinto, 1993) has consistently produced evidence which shows that students taking part in first-year (freshman) programs are likely to continue to their second-year (sophomore) of study. Moreover, students taking part in first-year programs have been found to maintain higher grade point averages. "Research on freshman-experience courses consistently indicated that they positively influence a variety of desired outcomes including retention, feelings of satisfaction, development of various cognitive skills, participation in extra-curricular activities, and academic performance" (Andreatta, 1998, p. 28).

Learning Communities

Learning communities were designed to allow students to become involved with smaller groups of students and teachers. Students involved in block scheduling and registration facilitated this process. As a cohort, they took specific classes together (Pascarella & Terenzini, 2005). Such courses can be organized along curricular lines, common career interest, a

vocational interest, residential living areas, and so on. These can be used to build a sense of group identity, cohesiveness, and uniqueness; to encourage; and to counteract the isolation that many students feel (Astin, 1985; Bean, 2005).

Studies revealed students involved in learning communities had higher grade point averages, developed better support networks (Astin, 1993), and usually were more involved in campus activities (Cabrera, Nora, & Castaneda, 1993; DuBrock, 1999; Levin, 1999; Purdie, 2007; Tinto, 1997). The research indicated two important outcomes of learning communities: students involved in learning groups had a higher retention rate and students not prepared for college continued on to the next semester in equal rates to those better prepared (Levin, 1999). Those findings correlated with Tinto's (1993) research on freshman-experience programs providing "a higher rate of retention even for those students who were initially less well-qualified than students who did not participate in the program (p. 167).

Orientation Intervention Programs

"For institutions, the freshman year is a period during which programs have the greatest impact on subsequent student development and persistence" (Tinto & Goodsell, 1993, p. 8). One type of first-year program was a new-student orientation. From history records, it is noted that orientation programs started with Lee College, Kentucky, in 1882, Boston University in 1888, Harvard University in 1909, and Stanford University in 1910. These institutions all proposed programs to orient new students to institutions of higher learning (Barefoot & Gardner, 1993; Crissman, 1999; Hodum, 2007; Purdie, 2007).

Although El-Khawas (1984) found 75 percent of America's colleges in the 1980s were involved in freshman orientation programs, Fidler and Fidler (1991) later found the number leveling off at 70 percent (Hodum, 2007; Pascarella & Terenzini, 1991). According to Perigo and Upcraft (1989), "Orientation is defined as any effort to help freshmen make the transition from

their previous environment to the collegiate environment and enhance their success” (p. 82). It was further determined that orientation programs have a strategic part in students’ transition from high school into college (Braxton, Hirschy, & McClendon, 2004; Colton, Connor, Schultz, & Easter, 1999; Fidler, 1991; Moxley, Najor-Durack, & Dumbrigue, 2001; Tinto, 1993).

Holmes, Ebbers, Robinson, and Mugenda (2000) argued that orientation helped build institutional integration and social networks. Orientation programs did this by having three basic goals: family support, personal success and integration into the institution, and academic success (Upcraft & Farnsworth, 1984). Colton et al. (1999), Fidler (1991), Horton (1987), Miller (1985), Tinto (1993), and Stupka (1986) indicated the positive effects of orientation programs on retention. However, in Morgan’s (1990) analysis of the National Orientation Directors’ Association data bank, findings failed to support evidence “of a significant influence of orientation courses on the retention rates of North American public institutions” (p. 116).

Student Characteristics

Ishler and Upcraft (2005) concluded in their review of student retention literature that the most salient student entering characteristics are: prior academic achievement, socioeconomic status, sex, age, race/ethnicity, familial support, and initial commitment to obtaining a degree. Some of these variables have been found to have a greater impact on retention than others. One of the most comprehensive and respected studies in this area is Astin’s (1996) multiple regression analysis of a national longitudinal retention database of 52,898 students attending 365 degree-granting colleges and universities (Purdie, 2007). He concluded that, “Four variables (student's high school grades, admissions test scores, sex, and race) account for the bulk of the variance in retention that can be predicted from entering freshmen characteristics” (Astin, 1996, p. 649).

Townsend (2006) observed that students enter the higher education system with certain characteristics already in place. They are either prepared, under prepared, or unprepared academically, they are either male or female, their parents have varying levels of education, they are at different ages, and they are from different socioeconomic status backgrounds (Townsend, 2006). These characteristics are usually referred to as student background characteristics (Tinto, 1975). Several studies of student retention in higher education have shown that student characteristics such as age (Nora et al., 2005), gender (Astin, 1984; Penalber, 2005; Tinto, 1987), parent's level of college education (Hahs-Vaughn, 2004; Ishitani & DesJardins, 2002; Townsend, 2006), and high school grades (Astin, 1990; Bean, 2005; Pascarella & Terenzini, 1979) are factors that influence college student decisions to either remain in or drop out of college. Many other background characteristics have also been associated with college student retention.

However, this study will explore the influence of sixteen factors on the decision of college students to re-enroll for their third year of study. These are: age, gender, race/ethnicity, high school grade point average (GPA), college entrance examination (ACT/SAT) composite scores, academic high school grade point average (GPA), credit hours the student carried each semester, credit hours the student earned each semester, cumulative college grade point averages (GPAs), students' living status, college of enrollment, students' major, first semester college GPA, students' residence status in the state, students' financial aid status, and students' involvement in college-level activities and organizations.

From the literature, students' age (Nora et al., 2005; Pascarella & Terenzini, 1979; Terenzini & Pascarella, 1980), gender (DuBrock, 1999; Nora et al., 2005; Trawick, 1994), socioeconomic status, measured in terms of parents' level of college (Ishitani & DesJardins, 2002; Nora et al., 2005), race/ethnicity (Nora et al., 2005; Smith, 1995) and ability (high school

academic achievement) (Cabrera & Nora, 1994; Cabrera, Nora, & Castaneda, 1993; Graham, 2001; Nora & Cabrera, 1996) are background characteristics that are most likely to influence college students to either withdraw from or persist in college. These are the factors that will form the framework for this study.

Socio-economic status is often examined in college student retention studies relating mostly to minority students (Townsend, 2006). This characteristic will, however, be examined in this study in relation to all students. Nora et al. (2005) contend that, “A descriptive profile (albeit restricted by the number of studies) can be constructed that demonstrates differences by gender, ethnicity, and financial aid status in year-to-year persistence” (p. 132).

Age

Students’ age has been found to be a predictor of college student drop out either by itself or in combination with other factors (Greer, 1980; Lanni, 1997; Penalber, 2005; Purdie, 2007). Other studies (e.g., Brooks-Lenoard, 1991; Nora et al., 2005; Penalber, 2005; Windham, 1995) have found that the older the students the more likely they are to drop out of or withdraw from college. According to Lenning (1982), older students tend to be “rusty” on academic skills, less able to adapt quickly to changing conditions, and slower in their work and thinking. Lenning explains that these weaknesses are compensated by tendencies to be more highly motivated, more mature, and more traditional in their values.

Due to the inherent differences in their abilities to adapt to varying college conditions, results of different studies have often conflicted. Students’ age as well as their reason for attending college, programs taken, and status (for example, retired persons interested in educational enrichment, middle-aged retrainees, homemakers wanting to enter careers after raising their children), may be deciding factors. Age has thus been found to be related to the reasons given for college student dropping out (Lenning, 1982). This study will examine the

participants' age to determine the influence it plays on students' decision to either re-enroll beyond their freshman and sophomore years or drop out of college.

Gender

Research results have been mixed regarding the influence of students' gender on their decision to withdraw from or remain in college (Penalber, 2005; Townsend, 2006). Earlier studies (Astin, 1996; Dubrock, 1999; Peltier, Laden, & Matranga, 1999; Trawick, 1994), found gender to be statistically non significant in predicting student retention. Research results have been mixed regarding the influence of students' gender on their decision to withdraw from or remain in college (Nora et al., 2005; Townsend, 2006). Female students are more likely to remain enrolled in statistically higher numbers than male students (Astin, 1993; Ishler & Upcraft, 2005; Purdie, 2007).

Further research (DuBrock, 1999; Peltier et al., 1999) found that persistence among male and female students during their first three years in college varies extensively (Nora et al., 2005). DuBrock (1999) reported that female students were more likely to return for second and fourth years in college while male students were more likely to return for their third year in college (DuBrock, 1999). In contrast, in an earlier study, Smith (1995) had revealed that female students were more likely to persist in college as compared to their male counterparts regardless of the academic-year-to-academic-year considered (Nora et al., 2005).

A study completed by St. John, Hu, Simmons, and Musoba (1999), revealed that gender did not significantly influence students' decision to either persist in or withdraw from college. However, Peltier et al. (1999) reported relatively consistent findings that gender was, in fact, predictive of persistence, with women more likely to persist than men. Trawick (1994) also reported that gender has a positive impact on student retention. The investigator contends that students' decisions to re-enroll in or withdraw from higher education are influenced by their

gender (Nora et al., 2005; Trawick, 1994). Tinto (1987) also suggested that gender could influence student decisions regarding college departure. Tinto (1987) reported that compared to men, women's withdrawal patterns are more related to social issues rather than academic, and they are more likely to leave college voluntarily, whereas males are more likely to persist until they are forced to leave for academic reasons (Townsend, 2006). However, Astin (1997) found that sex only explains about 2 percent of the variance in retention.

Race/Ethnicity

With regard to race or ethnicity, Smith (1995) found that after second year, only 59 percent of African Americans, 62 percent of Hispanics, and 54 percent of American Indians were retained compared to 71 percent of Caucasians. A more recent study by Dubrock (1999) has shown that American Indians were significantly less likely to persist to second year as compared to all other ethnic groups. The same study revealed that Hispanic students were more likely to persist to the fourth year than African American students (Nora et al., 2005). Astin (1997) reported that race/ethnicity only explains about 1 percent of the variance in the college student retention model.

Although the role a student's race/ethnicity plays in retention has been widely studied, the results to date have been difficult to interpret (Ishler & Upcraft, 2005; Purdie, 2007). Both Ishler and Upcraft (2005) and Stage and Hossler (2000) point out that racial/ethnic identity is a very difficult variable to accurately assess due to its confounding interaction effects with many other variables. For example, Purdie (2007) and Stage and Hossler (2000) report that students of color who attend predominantly White institutions are typically less likely to be retained than their White peers at those same institutions or their peers at predominantly Black institutions, even after controlling for entering academic ability. One possible explanation for these seemingly conflicting findings may be that some characteristics, such as race/ethnicity, play a

more influential role in some institutions and that the effect of this characteristic becomes masked when data from multiple institutions are combined (Purdie, 2007).

Socioeconomic Status

Social experiences have been reported to have a greater impact on college student persistence than personal attributes and pre-college experiences. An important student background characteristic associated with socioeconomic status and found to influence student retention is parents' level of education (Warburton, Bugarin, & Nunez, 2001). Parents' level of education is positively related to college student retention (Bean, 2005; Nora et al., 2005; Pascarella & Terenzini, 2005). When compared to students whose parents attended college, students whose parents did not attend college are less likely to aspire to a bachelor's degree, less likely to participate in academic programs leading to college enrollment, and less likely to apply to college (Horn & Bobbitt, 2000; Townsend, 2006).

Moreover, students whose parents did not go to college are less confident about their college academic experience (Riehl, 1994), less likely to socialize with peers, and less likely to talk to their instructors (Pascarella, Pierson, Wolniak, & Terenzini, 2004). These behaviors, which are indicative of a lack of student involvement, can have a negative effect on their ability to persist in college. In contrast, students whose parents attended college are more likely to be enrolled continuously or to attain a degree at their initial post-secondary institution than students whose parents did not go to college (Warburton, Bugarin, & Nunez, 2002).

Ishitani and DesJardins (2002) found that for students from low-income backgrounds, their mothers' level of education had a significant impact on their persistence in second-to-third-year re-enrollment and also on their third-to-fourth-year return. Jaschick (2005) reported that students whose parents did not go to college are at a disadvantage throughout their time at college. Students with this background enter college without much preparation, they earn lower

grades, and they are more likely to drop out (Jaschick, 2005). On the other hand, students' whose parents had a bachelor's degree were more likely to persist in college to graduation. Jaschick (2005) further established that only 5 percent of African American students' parents had earned a Bachelor's degree compared to 84 percent of White students' parents. Parents' level of education has been consistently classified under socioeconomic status, being an important factor associated with college student retention (Nora et al., 2005).

Pre-College Factors

Pre-college preparation is an important concept associated with student success in a college or university. The educational community often defines academic preparedness in terms of a students' pre-college academic performance. A direct correlation between high school academic performance and first-year college academic performance has been established (Tinto, 1987). Students who perform well academically in high school (measured by a variety of outcomes) usually perform well academically during their first year in college in terms of grades and they usually persist. In higher education the role of student ability is complex (Purdie, 2007; Townsend, 2006).

High School GPA

Ishler and Upcraft (2005) found that the entering characteristic that exerts most influence on college student retention is prior academic achievement. The metrics most commonly used to measure prior academic achievement are standardized tests (Astin, 1993; Pascarella & Terenzini, 2005; Purdie, 2007), and high school GPA (Astin, 1993; Pascarella & Terenzini, 2005). Astin (1997) explained that of all the variables frequently examined, high school GPA is the most useful in predicting retention. He further contends that student performance on standardized tests does not add much to what can already be predicted based on high school GPA.

Astin (1997) reported that high school GPA accounted for 8.6 percent of the variance in student retention, and that including SAT scores only increased the amount of variance accounted for to just over 10 percent. In a recent meta-analysis, Robbin (2004) also found that high school GPA is a better predictor of college student retention than standardized test scores. However, performance on standardized tests has been found to be suitable in predicting the retention of students from some minority groups (Schwartz & Washington, 1999; Zwick & Sklar, 2005).

Nora et al. (2005) found that high school grades have a positive influence on college academic achievement, as measured by cumulative grade point averages (GPAs). Earlier research (e.g., Cabrera & Nora, 1994; Cabrera, Nora, & Castaneda, 1993; Nora & Cabrera, 1996) found that students' high school academic performance had very little influence on student persistence. In contrast to those findings, DuBrock (1999) in a more recent study found that high school GPA had a significant influence on students' decision to re-enroll into their second and third years. In a most recent study, Nora et al. (2005) reported that the students' mean high school GPA had little impact on college student retention or graduation rates in subsequent years. The researchers report that students who re-enrolled for their third year had only slightly higher GPAs (3.26) than their counterparts who dropped out during their second year in college or those who did not re-enroll for their third year (3.06). Furthermore, the mean high school GPA (3.31) of students who graduated within six years was only marginally higher than the mean high school GPA (3.08) of students who had not graduated during that six-year period (Nora et al., 2005).

College Entrance Examination (ACT/SAT) Composite Scores

Penalber (2005) citing Schmidt (1999), states that:

“As a result of increased accountability due to performance based on funding, administrators of many higher education institutions have raised entrance

examination requirements in an attempt to attract students who appear better prepared for college and who are more likely to complete degree programs” (p. 35).

Students’ ability has been measured in a variety ways such as high school grade point average, high school rank in class, ACT/SAT scores, completion of high school preparatory courses, enrollment in advanced placement courses, the quality of high school attended, and quality and intensity of high school curriculum (Swail et al., 2003; Townsend, 2006). Bontekoe (1992) (as cited in Penalber, 2005), reported that the ACT composite score can be used to predict student success (measured by college grade point average).

A later study by Brooks and DuBois (1995) showed a strong association between ACT composite scores of entering first-year students and their ability to successfully adjust to college. Their study results revealed that students with high ACT composite scores were more likely to persist to graduation compared to their counterparts with low ACT composite scores. However, this study will utilize overall high school grade point average, college entrance examination (ACT/SAT composite scores), and academic high school grade point average to measure student retention. According to Astin (1982), academic performance in secondary schools measured in terms of a student’s grade point average is a much stronger predictor of college grades and persistence than standardized test scores. Astin (1982) states that African American students’ high school grades prove to be by far the most important predictor of college GPA.

Furthermore, Astin (1982) suggests that African American students’ average grade in high school proves to be the most consistent and substantial predictor of most measures of undergraduate persistence. A number of research studies have correlated academic preparedness of students with their persistence and college completion rates (Aldeman, 1999; Borman, Stringfield, & Rachuba, 2000; Cabrera, Nora, & Castaneda, 1992; Ishitani & DesJardins, 2002;

Nora et al., 2005; Parker, 1997; 1999; Pascarella, & Terenzini, 2005; St. John, Cabrera, Nora, & Asker, 2001; Sujitparapitaya, 2006). They found that high school GPA was consistently significant in predicting student retention across all the demographic groups.

However, Nora et al. (2005) found that the average Scholastic Aptitude Test (SAT) total score of first-time-in-college students (FTIC) who re-enrolled for their third year (1,054) was only slightly higher than total score of students who did not re-enroll for their third year (1,036). In addition, the researchers found that the average SAT total score of students who graduated within six years (1,072) was much higher than the average SAT total score of students who did not graduate (947). Pascarella and Terenzini (2005) report that the grades earned during the first year of college “may well be the single best predictors of student persistence” (p. 396). Stassen (2003) explains that students who are extremely unsuccessful academically are eventually asked by their institution to leave. It is not surprising that how academically successful students are determines their persistence in college (Purdie, 2007; Stassen, 2003).

Students' Living Status

Astin (1999) strongly endorses living on campus while enrolled at a college or university. He contends that students who live in campus residences are much more likely to enjoy college environment when compared to students who do not live in a campus residence (Townsend, 2006). Astin also claims that residential students demonstrate greater gains in the arts, liberalism, and interpersonal self-esteem. More importantly the researcher contends that students living in college residences are exposed to even more significant forms of involvement such as: interaction with faculty, involvement in student government, participation in social fraternities or sororities, and other extracurricular activities (Astin, 1999; Townsend, 2006).

Astin (1993) suggested that when compared to non resident students, students living on campus are more satisfied with their student friendships, faculty-student relations, and social life.

He concluded that living on campus substantially increases student involvement. In terms of student retention, Astin (1984) contends that living on campus substantially increases the student's chances of persisting and of aspiring to obtain a graduate or professional degree.

A number of researchers (Galicki & McEwen, 1989; Pascarella, 1985; Velez, 1985) agree that there are multiple positive student outcomes from living in a campus residence. Pascarella (1985) reported that the influence of on-campus living is significant and that intellectual and social self-concepts of students are strongly affected by their relationships with faculty and peers. Velez (1985) reported that where a person lives has the largest significant effect on the probability of finishing college. He posits that students living on campus have more academically oriented friends, and are more integrated into the campus life.

Galicki and McEwen (1989) examined the relationship of residence to student retention among African American students and White students. They found that over all, African American students residing on campus persisted at a significantly higher rate than their White counterparts who resided on campus. They also reported that African American students who commuted to college had the lowest persistence rate (45 percent) compared to African-American students who resided on campus (70 percent). They further reported that most of the African American freshmen who dropped out of college were commuters.

From the literature, living on a college campus is positively related to student retention (Bean, 1985; Nora et al., 2005; Nora, 1987; Nora & Wedam, 1993). Factors that pushed students away from college, such as commuting, living off campus, and working off campus, were found to influence students' decision not to return to college (Nora et al., 2005). However, a study by Wolfe & Johnson (1995) in which they compared academic outcome of residential and commuter students, found no significant differences in academic success between campus

residents and commuters. DuBrock (1999) also found that students living on campus were much more likely to persist past their first year in college.

College Grade Point Averages (GPA)

To help insure continued access in college, successful academic performance during the first year of college is crucial (Murtaugh, Burns, & Schuster, 1999). Because dropout rates tend to be the highest between the freshman and sophomore year, intervening to retain students past the first year of college is probably the most efficient way to increase graduation rates according to Levitz, Noel, and Richter (1999). It has been determined through several studies that first-year grade point average, an indicator of initial academic success, is a significant predictor of student retention (Allen, 1999; Murtaugh, et al., 1999; Reason, 2003). However, Astin (1993) contends that grades are only reflective of student performance relative to other students at a given point in time, and are not necessarily indicative of what has been learned.

Astin (1991) endorses the replacement of the current college grading system with performance measures that reflect student growth and development through repeated pre-testing and post-testing. He claims that such measures are more accurate and reflect the effectiveness of institutional programs (Purdie, 2007). However, Astin (1993) concedes that college grades continue to represent an important aspect of student accomplishment in college because poor grades are still the cause for academic dismissal and high grades are still a prerequisite for admission to graduate and professional school. Allen (1999), in his study of the impact of desire to finish college on student retention, reported that first-year college GPA was a statistically significant predictor of between-year retention for both minority and non-minority students.

In their research on first-to-second-year persistence, Cabrera and Nora (1994) and Nora and Cabrera (1996) revealed that the students' first-year academic performance in college has an impact on students' academic and social experiences, their commitment to attaining a degree,

and ultimately their decisions to withdraw from college. Further studies (Bradburn, 2002; Ishitani & DesJardins, 2002; Maack, 2002) show that college GPA exerts the largest direct effect on whether a student will return to or withdraw from college. According to Ishitani and DesJardins (2002), students are at very high risk of dropping out of college in their second year if their first-year college GPA is below 2.00.

Murtaugh et al. (1999), in their study on predicting university students' retention, reported similar results. They used first quarter GPA to predict retention between the first and second years of college. Murtaugh et al. (1999) reported that the probability of returning for a second year of college increased dramatically with higher first semester GPAs (Townsend, 2006). Since good grades are positively correlated with academic outcomes and persistence, it is important for colleges and universities to help students develop their academic and intellectual skills during that all important first-year of college.

Students' Initial College and Academic Major

The academic achievement of undergraduate students, as measured by their college GPA, may be attributed to the college and major in which the student is enrolled (Nora et al., 2005). The academic major a student chooses to initially matriculate might have both direct and indirect consequences on retention (Purdie, 2007). Science, mathematics, and engineering students encounter less welcoming and engaging classrooms compared to other students (Daempfle, 2003). Perhaps this leads to lower satisfaction and/or perceiving the campus to be less supportive; perhaps students in science, mathematics, and engineering are less likely to encounter 'active learning' in their first year.

Whatever the cause, Astin (1997) points out that "institutions enrolling many students in fields such as business, psychology, or other social sciences would be expected to have higher-than expected retention rates, whereas those enrolling large numbers of students majoring in

engineering would be expected to have lower-than-expected rates” (p. 654). Many colleges and universities offer courses specifically designed to help students transition into college successfully. Participation in such courses has been repeatedly demonstrated to increase persistence (Ishler & Upcraft, 2005). Some colleges have more demanding course loads than others. These may influence the decision of students (especially less prepared students) to drop out of college (Nora et al., 2005).

Ryan and Glenn (2004) note that while students self-selected into one of these courses, the decision regarding which course to take appeared to be driven by student’s schedules as opposed to anything else, and since there were no statistical differences in the background characteristics of the students in the two courses, the authors argue that different results must be caused by differences between the two courses. Ryan and Glenn (2004) found that students who took the course focused on academic skill development were retained at higher rates than those who took the course focused on integrating students into the academic community, even after controlling for entering characteristics (i.e., SAT score, high school percentile rank, gender, race/ethnicity).

Financial Aid Status

Research on student retention indicates that finances play a major role in college student withdrawal decisions (Cabrera, Nora, & Castaneda, 1992; Nora et al., 2005; Nora & Cabrera, 1996; Nora, Cabrera, Hagedorn, & Pascarella, 1996).

According to Nora et al. (2005),

“The stress associated with financing one’s education was found to negatively impact the decisions of students to remain in college. Financial pressures – the pressures to meet the costs of tuition, fees, books, and room and board – overly affected a student’s ability to integrate fully into his or her academic and social environment, ability to engage in-class and out-of-class experiences, and ability to maintain a high level of aspirations toward earning a degree, and ultimately led to a student’s decision to withdraw from college” (p. 135).

Nora et al. (2005) have reported that there is enough documentation of the effects of financial aid on college student retention beyond the first year. Research (DuBrock, 1999; Ishitani & DesJardins, 2002) indicates that students are nearly twice as likely to persist between the second and third years if they receive financial aid. Ishitani and DesJardins (2002) found that financial aid reduces the risk of student drop out in the third year.

St. John, Cabrera, Nora, and Asker (2000) theorize that financial variables (such as the amount and type of financial aid received) could explain almost half of the variance in student persistence. A student's socioeconomic status is an entering characteristic, but environmental characteristics (such as cost of tuition/fees and the amount and type of financial aid or scholarship received) also influence the likelihood of college student retention. Ishitani and DesJardins (2002) looked at financial aid (no aid, and four quartiles of aid amounts received) and found that the effect of financial aid is not constant throughout the undergraduate years. They report that aid seems to be very important in the retention of second- and third year students, but has very little effect on the retention of first- and fourth-year students.

As would be assumed, the more aid a student receives, the more likely he or she will remain enrolled (Ishitani & DesJardins, 2002). Student satisfaction with the undergraduate experience, how supportive they perceive the campus climate to be, and what major they initially pursue have all been linked with retention. Although measuring how satisfied first-year students are with their experience is typically addressed through institution-specific assessments as opposed to theoretically-driven research on retention, research does exist which indicates that student satisfaction is positively correlated with persistence (Sanders & Burton, 1996).

Residency Status of Students

The residency status of students, which relates to out-of-state tuition, is an overlapping factor with student financial aid. According to Nora et al. (2005), a student's inability to establish

residency in a state and having to pay nonresident tuition have a significantly negative effect on student persistence in the first two years of college. Undergraduates classified as out-of-state students are 1.93 times less likely to return for a second year and 2.04 times less likely to return for a third year (DuBrock, 1999; Nora et al., 2005). The exceptionally high cost of tuition may outweigh any perceived benefits to students attending college outside their home state (Nora et al., 2005). Murtaugh et al. (1999) found in their study that in-state students have lower attrition rates than nonresidents.

Student Participation in College Activities/Organizations

Research shows that peer-to-peer interaction both inside and outside of the classroom plays one of the most important roles in college student persistence (Astin, 1993; Pascarella & Terenzini, 1991, 2005; Purdie, 2007). Astin (1996, p. 126) observed that “the greater the interaction with peers, the more favorable the outcome.” This perhaps explains why students’ involvement in activities or organizations (such as a Fraternity or Sorority or student government) has been found to be positively associated with college student retention and graduation (Moore, Lovell, McGann & Wyrick, 1998). Tripp’s (1997) review of the literature specifically regarding the effect of Greek membership suggests that Greek students are more likely to persist in college than their counterparts not taking part in any organization.

Credit Hours Carried

There is evidence that supports the suggestion that the number of credit hours carried by a student may be associated with student retention (Nora et al., 2005). In a study of factors that influence students to re-enroll in subsequent years, Nora et al. (2005) found that students who persisted to the second year carried more credit hours during their first semester in college (87 percent) than their counterparts who dropped out of same institution (81 percent). The authors also found that students persisting from their second year to their third year had carried even

more credit hours during their first academic semester in college (89 percent) than those students dropping out (74 percent). Nora et al. (2005) concluded that students carrying more credit hours were more committed to degree completion, hence persisted in college.

Credit Hours Earned

A study by Chaney et al. (1997) (as cited in Penalber, 2005) found that students who took part in Student Support Services (SSS) earned about two additional credit hours during their freshman and sophomore years than their counterparts who did not take part in the program. Zhao (1999) (as cited in Penalber, 2005) reported that students who successfully carried more credit hours each semester were more likely to persist and complete their programs (Penalber, 2005). The researcher intends to examine both the credit hours carried and earned by students during their freshman and sophomore years in order to determine their influence on retention status.

Empirical Studies of Retention

Drawing from theoretical retention frameworks of Tinto (1975, 1987, 1993), Bean (1980), and Astin (1984), a number of empirical studies of retention have been conducted (Townsend, 2006). Using Tinto's (1975) interactionalist theory framework, several studies suggest that student background characteristics such as high school grades (Washington & Schwartz, 2002), high school rank (Peltier et al., 1999; Reason, 2003; Townsend, 2006), and ACT/SAT scores (Graham, 2001; Tross, Harper, Osher, & Kneidinger, 2000), influence student persistence.

Summary

This review of the literature indicated that the problem of retention in higher education remained largely unanswered. However, the literature has documented existing theories regarding student retention/attrition. Spady's (1970, 1971), Tinto's (1975, 1987, 1993), and

Astin's (1970, 1984) models provide the foundation for past, present, and future research. Validation and modification of these theories and development of new theory can assist researchers, policy makers, and other stakeholders in higher education in their quest for answering the pertinent questions concerning college student retention or withdrawal. Furthermore, there is a lot of evidence in support of the need for colleges and universities to provide an enabling environment for students to both academically and socially integrate.

Academic and social integration of students in college environment has been shown to be an important component in the college student retention process (Tinto, 1975). Most of the research has been focused on factors that influence first-year students to either persist in or withdraw from college (Nora et al., 2005). However, Tinto (1975) posits that college student retention/attrition is a longitudinal process. This proposition provides the necessary theoretical framework for and a shift in research to focus on post-freshman-year college student dropout.

It is also worthy noting that numerous studies have supported many intervention programs that promoted social and academic integration, ultimately leading to student retention. Such programs have the capability of assisting students to remain in college until they graduate instead of turning students into dropout data (Hodum, 2007). Programs such as academic advising, developmental studies, participating in learning communities, and student orientation are some of the various intervention programs that have been found effective in helping students to remain enrolled in college, leading to increased retention and graduation rates.

Conclusion

There are still notable gaps in the research using Tinto's (1975, 1987, 1993) Interactionalist Theory of Student Departure. Tinto (1988, p. 450) stated, "Despite the mass of quantitative evidence on reasons for student departure, we do not fully understand, for example, how students perceive their own departure at varying points in their college careers." Studies

examining the validity of Tinto's proposition about the impact of academic and social integration on students' initial commitment to the goal of graduation from college and their initial commitment to institution are still absent from the college student retention equation. Similarly, studies assessing the validity and overall impact of various factors influencing students to integrate academically and socially in their college environment are limited. The lack of clear answers to the student retention/attrition puzzle calls for more research to unravel the myth that surrounds college student departure.

This study was envisaged to contribute to the small albeit, growing body of theoretical and conceptual research into the student retention beyond the first year in college. While a lot of research has been done on student retention over the past thirty years, major gaps in the persistence literature exist on college student retention past their first year. Nora et al. (2005) offer an explicit summary of the existing research on the student retention and degree attainment beyond their first year in college, "... because of the intense focus by researchers and practitioners on the first year in college, problems with student attrition have shifted from first year to subsequent years even when students successfully engage their initial college experience" (pp. 129-130). Therefore, there was a need to study the factors that influence students to re-enroll in their third year of study at research-extensive university in the Southern region of the United States.

CHAPTER THREE

METHODOLOGY

Purpose of Study

The primary purpose of this study was to determine the influence of selected demographic and academic characteristics on the decision of traditional-age, undergraduate students to re-enroll for their third year of study at a research extensive university in the Southern region of the United States. The dependent variable of this study was whether or not the traditional-age undergraduate students who completed their second year of study subsequently re-enrolled at a research extensive university in the Southern region of the United States for their third year as defined by their payment or non-payment of fees and inclusion or non-inclusion in the 14th class-day statistics.

The following objectives were formulated to guide this research study:

1. To describe traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
 - a. Age;
 - b. Gender;
 - c. Race/Ethnicity;
 - d. Overall high school grade point average (GPA);
 - e. College entrance examination (ACT/SAT) composite scores;
 - f. High school academic grade point average (GPA);
 - g. Credit hours the student carried each semester;
 - h. Credit hours the student earned each semester;

- i. Cumulative college grade point average (GPA) as of or at the end of their second year;
 - j. College grade point average for the first semester of the first year;
 - k. Whether or not the student lived on campus;
 - l. Initial academic college of enrollment;
 - m. Whether or not the student changed major and if so the number of times changed;
 - n. Whether or not the student was a resident of the state;
 - o. Whether or not the student received one of the university's major academic scholarships;
 - p. Whether or not the student was involved in selected college-level student activities and organizations.
2. To describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
- a. Age;
 - b. Gender;
 - c. Race/Ethnicity;
 - d. Overall high school grade point average (GPA);
 - e. College entrance examination (ACT/SAT) composite scores;
 - f. High school academic grade point average (GPA);
 - g. Credit hours the student carried each semester;
 - h. Credit hours the student earned each semester;

- i. Cumulative college grade point average (GPA) as of or at the end of their second year;
 - j. College grade point average for the first semester of the first year;
 - k. Whether or not the student lived on campus;
 - l. Initial academic college of enrollment;
 - m. Whether or not the student changed major and if so the number of times changed;
 - n. Whether or not the student was a resident of the state;
 - o. Whether or not the student received one of the university's major academic scholarships;
 - p. Whether or not the student was involved in selected college-level student activities and organizations.
3. To compare the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and inclusion in the 14th class-day statistics to those traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at the same institution as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
- a. Age;
 - b. Gender;
 - c. Race/Ethnicity;
 - d. Overall high school grade point average (GPA);
 - e. College entrance examination (ACT/SAT) composite scores;

- f. High school academic grade point average (GPA);
 - g. Credit hours the student carried each semester;
 - h. Credit hours the student earned each semester;
 - i. Cumulative college grade point average (GPA) as of or at the end of their second year;
 - j. College grade point average for the first semester of the first year;
 - k. Whether or not the student lived on campus;
 - l. Initial academic college of enrollment;
 - m. Whether or not the student changed major and if so the number of times changed;
 - n. Whether or not the student was a resident of the state;
 - o. Whether or not the student received one of the university's major academic scholarships;
 - p. Whether or not the student was involved in selected college-level student activities and organizations.
4. To determine if a model existed that significantly increased the researcher's ability to accurately explain the retention status of traditional-age, undergraduate students regarding whether or not they re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment or non-payment of fees and inclusion or non-inclusion in the 14th class-day statistics from the following selected demographic and academic characteristics:
- a. Age;
 - b. Gender;
 - c. Race/Ethnicity;

- d. Overall high school grade point average (GPA);
- e. College entrance examination (ACT/SAT) composite scores;
- f. High school academic grade point average (GPA);
- g. Credit hours the student carried each semester;
- h. Credit hours the student earned each semester;
- i. Cumulative college grade point average (GPA) as of or at the end of their second year;
- j. College grade point average for the first semester of the first year;
- k. Whether or not the student lived on campus;
- l. Initial academic college of enrollment;
- m. Whether or not the student changed major and if so the number of times changed;
- n. Whether or not the student was a resident of the state;
- o. Whether or not the student received one of the university's major academic scholarships;
- p. Whether or not the student was involved in selected college-level student activities and organizations.

Population

The target population for this study was defined as all the traditional-age undergraduate students who completed their second-year of study at a research extensive university. The accessible population was defined as all traditional-age undergraduate students who entered during the fall 2005 semester at a selected research extensive university in the Southern region of the United States. It should be noted that the population for this study excluded all traditional-age, undergraduate students who entered during the fall 2005 semester at the same research

extensive university and had disabilities and those who were affected by the Hurricanes Katrina and Rita.

Sample

The sample for this study was defined as all traditional-age undergraduate students who entered during the fall 2005 semester at the selected research extensive university in the Southern region of the United States. The sampling plan for this study was as outlined below:

a) All traditional-age, undergraduate students who entered during the fall 2005 semester at a selected research extensive university in the Southern region of the United States were identified following the 14th class-day statistics from the database of the study institution's Office of Undergraduate Admissions and Student Aid.

b) The sample was defined as 100 percent (census) of the accessible population. This study therefore had a total of 4,254 traditional-age undergraduate students who entered during the fall 2005 semester at a selected research extensive university in the Southern region of the United States chosen as the sample.

Instrumentation

The instrument used to collect data for this study consisted of a researcher-designed, computerized recording form on which data from the Office of Undergraduate Admissions and Student Aid was downloaded and stored. The specific factors (variables) to be measured were determined from the review of related literature and also from the information obtained from the study institution's Office of Undergraduate Admissions and Office of the Dean of Students databases. The information from the databases was downloaded into a file that served as the research instrument. The variables that were downloaded included:

- a. Age;
- b. Gender;
- c. Race/Ethnicity;
- d. Overall high school grade point average (GPA);
- e. College entrance examination (ACT/SAT) composite scores;
- f. High school academic grade point average (GPA);
- g. Credit hours the student carried each semester;
- h. Credit hours the student earned each semester;
- i. Cumulative college grade point average (GPA) as of or at the end of their second year;
- j. College grade point average for the first semester of the first year;
- k. Whether or not the student lived on campus;
- l. Initial academic college of enrollment;
- m. Whether or not the student changed major and if so the number of times changed;
- n. Whether or not the student was a resident of the state;
- o. Whether or not the student received one of the university's major academic scholarships;
- p. Whether or not the student was involved in selected college-level student activities and organizations.

Data Collection

The method used in collecting data involved transferring information from the selected research extensive university's student records and student admissions data bases. The information was downloaded onto the researcher-designed computerized recording form that

served as the instrument. Permission for this study was sought from university administrators, while the permission to access the data and approval for conducting the study was requested from the Institutional Review Board (IRB) (see the IRB Consent Form # 4076, Appendix A).

The researcher further sought computer assistance from the Offices of Undergraduate Admissions and Dean of Students. The specific demographic and academic variables were selected from the review of related literature and in relation to the research questions presented in this study. There was systematic data retrieval from the university's mainframe computer in order to access the necessary files and store them for the data analysis process.

There was no individual identification information included in the downloaded data. This was done in order to ensure that anonymity of the data was maintained.

Data Analysis

The data analysis was organized by individual research objectives. The first objective of this study was to describe the traditional-age, undergraduate students who re-enrolled for the beginning of their third year of study as defined by their payment of fees and inclusion in the 14th class-day statistics at a research extensive university in the Southern region of the United States on the following selected demographic and academic characteristics:

- a. Age;
- b. Gender;
- c. Race/Ethnicity;
- d. Overall high school grade point average (GPA);
- e. College entrance examination (ACT/SAT) composite scores;
- f. High school academic grade point average (GPA);
- g. Credit hours the student carried each semester;
- h. Credit hours the student earned each semester;

- i. Cumulative college grade point average (GPA) as of or at the end of their second year;
- j. College grade point average for the first semester of the first year;
- k. Whether or not the student lived on campus;
- l. Initial academic college of enrollment;
- m. Whether or not the student changed major and if so the number of times changed;
- n. Whether or not the student was a resident the state;
- o. Whether or not the student received one of the university's major academic scholarships;
- p. Whether or not the student was involved in selected college-level student activities and organizations.

This objective was descriptive and was therefore analyzed using descriptive statistics.

Frequencies and percentages were used for categorical (nominal or ordinal) variables. The variables specified as categorical were:

- a) Gender;
- b) Race/ethnicity;
- c) Whether or not the student lived on campus;
- d) Initial academic college of enrollment;
- e) Whether or not the student was a resident of the state;
- f) Whether or not the student changed major;
- g) Whether or not the student received one of the university's major academic scholarships; and
- h) Whether or not the student was involved in selected college-level student activities and organizations.

Means and standard deviations were used to analyze variables measured on interval or higher scales. The specific variables in this category were:

- a) Age;
- b) Overall high school grade point average (GPA);
- c) College entrance examination (ACT/SAT composite scores);

- d) High school academic grade point average (GPA);
- e) Credit hours the student carried each semester;
- f) Credit hours the student earned each semester; and
- g) Cumulative college grade point average (GPA) as of or at the end of their second year.
- h) College grade point average for the first semester of the first year;
- i) The number of times the student changed major;

The second objective was to describe traditional-age, undergraduate students who did not re-enroll for the beginning of their third year of study as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics at a research extensive university in the Southern region of the United States on the following selected demographic and academic characteristics:

- a) Age;
- b) Gender;
- c) Race/Ethnicity;
- d) Overall high school grade point average (GPA);
- e) College entrance examination (ACT/SAT) composite scores;
- f) High school academic grade point average (GPA);
- g) Credit hours the student carried each semester;
- h) Credit hours the student earned each semester;
- i) Cumulative college grade point average (GPA) as of or at the end of their second year;
- j) College grade point average for the first semester of the first year;
- k) Whether or not the student lived on campus;
- l) Initial academic college of enrollment;
- m) Whether or not the student changed major and if so the number of times changed;

- n) Whether or not the student was a resident of the state;
- o) Whether or not the student received one of the university's major academic scholarships;
- p) Whether or not the student was involved in selected college-level student activities and organizations.

This objective was descriptive and was therefore analyzed using descriptive statistics.

Frequencies and percentages were used for variables measured on categorical (nominal or ordinal) scale. The specific variables in this category were:

- a) Gender;
- b) Race/ethnicity;
- c) Whether or not the student lived on campus;
- d) Initial academic college of enrollment;
- e) Whether or not the student was a resident of the state;
- f) Whether or not the student changed major;
- g) Whether or not the student received one of the university's major academic scholarships; and
- h) Whether or not the student was involved in selected college-level student activities and organizations.

Means and standard deviations were used to analyze variables that were measured on interval or higher scales. The variables in this category were:

- a) Age;
- b) Overall high school grade point average (GPA);
- c) College entrance examination (ACT/SAT composite scores);
- d) High school academic grade point average (GPA);
- e) Credit hours the student carried each semester;
- f) Credit hours the student earned each semester;
- g) Cumulative college grade point average (GPA) as of or at the end of their second year;
- h) College grade point average for the first semester of the first year;
- i) The number of times the student changed major;

The third objective for this study was to compare the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and

inclusion in the 14th class-day statistics to those traditional-age, students who did not re-enroll for their third year in the fall 2007 semester at the same institution as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:

- a. Age;
- b. Gender;
- c. Race/Ethnicity;
- d. Overall high school grade point average (GPA);
- e. College entrance examination (ACT/SAT) composite scores;
- f. High school academic grade point average (GPA);
- g. Credit hours the student carried each semester;
- h. Credit hours the student earned each semester;
- i. Cumulative college grade point average (GPA) as of or at the end of their second year;
- j. College grade point average for the first semester of the first year;
- k. Whether or not the student lived on campus;
- l. Initial academic college of enrollment;
- m. Whether or not the student changed major and if so the number of times changed;
- n. Whether or not the student was a resident of the state;
- o. Whether or not the student received one of the university's major academic scholarships;
- p. Whether or not the student was involved in selected college-level student activities and organizations.

An a' priori significance level of less than .05 was used to determine if the independent variables were statistically significant. Various statistical procedures were used in order to accomplish this objective. The Chi-square test of independence and the independent t-test procedures were used to analyze data. For variables that were measured on categorical scale of measurement (nominal or ordinal), the Chi-square test of independence was used to determine if each of the measures were independent of the variable whether or not the second-year undergraduate students were retained at the research institution for this study. The specific variables in this category were:

- a) Gender;
- b) Race/ethnicity;
- c) Whether or not the student lived on campus;
- d) Initial academic college of enrollment;
- e) Whether or not the student was a resident of the state;
- f) Whether or not the student changed major;
- g) Whether or not the student received one of the university's major academic scholarships; and
- h) Whether or not the student was involved in selected college-level student activities and organizations.

For variables that were measured on interval or higher scale of measurement, the independent t-test statistical procedure were used to compare the students who re-enrolled with those who did not re-enroll in their third year at the research extensive university. The specific variables in this category were:

- a) Age;
- b) Overall high school grade point average (GPA);
- c) College entrance examination (ACT/SAT composite scores);
- d) High school academic grade point average (GPA);
- e) Credit hours the student carried each semester;
- f) Credit hours the student earned each semester;
- g) Cumulative college grade point average (GPA) as of or at the end of their second year;
- h) College grade point average for first the semester of the first year;
- i) The number of times the student changed major;

An a' priori significance level of less than .05 was used to determine whether or not the independent variables were statistically significant.

The fourth objective of this study was to determine if a model existed that significantly increased the researcher's ability to accurately explain the retention status of traditional-age, undergraduate students regarding whether or not they re-enrolled for their third year of study in the fall 2007 semester at a research extensive university in the Southern region of the United States in the fall 2007 semester as defined by their payment or non-payment of fees and inclusion or non-inclusion in the 14th class-day statistics from the following demographic and academic characteristics:

- a. Age;
- b. Gender;
- c. Race/Ethnicity;
- d. Overall high school grade point average (GPA);
- e. College entrance examination (ACT/SAT) composite scores;
- f. High school academic grade point average (GPA);
- g. Credit hours the student carried each semester;
- h. Credit hours the student earned each semester;
- i. Cumulative college grade point average (GPA) as of or at the end of their second year;
- j. College grade point average for the first semester of the first year;
- k. Whether or not the student lived on campus;
- l. Initial academic college of enrollment;
- m. Whether or not the student changed major and if so the number of times changed;

- n. Whether or not the student was a resident of the state;
- o. Whether or not the student received one of the university's major academic scholarships;
- p. Whether or not the student was involved in selected college-level student activities and organizations.

To accomplish this objective, multiple discriminant analysis statistical technique was used. Multiple discriminant analysis procedure requires that all predictor or independent variables entered in the model must be on a continuous scale of measurement (interval or ratio) or must be coded as a dichotomous variable. Student re-enrollment status, measured as a dichotomous variable (students re-enrolled/students not re-enrolled), was the dependent variable in the analysis. The independent variables were entered in the model either as continuous variables or as binary-coded (dichotomous) variables. The independent variables in this category were coded for the analysis as outlined below:

- a. Age – this was measured as continuous variable.
- b. Overall high school grade point average (GPA) – this was measured as a continuous variable.
- c. College entrance examination (ACT/SAT composite scores) – this was measured as a continuous variable.
- d. High school academic grade point average (GPA) – this was measured as a continuous variable.
- e. Credit hours the student carried each semester – this was measured as a continuous variable.
- f. Credit hours the student earned each semester – this was measured as a continuous variable.
- g. Cumulative college grade point average (GPA) as of or at the end of their second year – this was measured as a continuous variable.
- h. College grade point average (GPA) for the first semester of the first year – this was measured as a continuous variable.

- i. Gender – This was coded as male = 1; female = 0.
- j. Race/ethnicity - Each of the racial/ethnic categorical was coded as a binary variable, each subject classified as either possessing the trait or not possessing the trait. For example, a variable was created for the Caucasian race in which all the study subjects were classified as either possessing the trait of being Caucasian, coded as 1, or not possessing the trait of Caucasian, coded as 0. This was repeated for each of the other racial/ethnic categories of African-American students, Asian students, and Hispanic students. A total of four binary-coded variables were entered into the model for analysis.
- k. Whether or not the student lived on campus - this was coded as student living on campus = 1; student living off campus = 0.
- l. Initial academic college of enrollment – for this variable, the coding was done as follows: students who chose college of enrollment = 1 and students who did not choose college of enrollment = 0.
- m. Whether or not the student changed major and if so the number of times changed – students who changed major = 1; students who did not choose major = 0. Also, the number of times student changed major was coded as follows: changed once = 1; changed more than once = 0
- n. Whether or not the student was classified as a resident of the state – this will be classified as resident = 1 and non-resident = 0.
- o. Whether or not the student received one of the university’s major academic scholarships – this was defined as student receiving financial aid = 1 and student not receiving financial aid = 0.
- p. Whether or not the student was involved in selected college-level student activities and organizations – this was defined as student involved in selected college-level student activities and organizations = 1 and student not involved in selected college-level student activities and organizations = 0.

As stated earlier, the statistical technique used for analyzing data in this study was multiple discriminant analysis. This is because as Hair, Anderson, Tatham, and Black (1998, p. 244) explain, “Discriminant analysis and logistic regression are the appropriate statistical techniques when the dependent variable is categorical (nominal or non-metric) and the independent variables are metric... Discriminant analysis is capable of handling either two groups or multiple (three or more) groups.” Since this was designed as an exploratory study, the

variables were considered equally while entering into the model. Thus, the variables were entered into the discriminant analysis model using the stepwise procedure.

CHAPTER FOUR

RESULTS

The primary purpose of this study was to determine the influence of selected demographic and academic characteristics on the decision of traditional-age, undergraduate students to re-enroll for their third year of study in the fall 2007 semester at a research extensive university in the Southern region of the United States. The dependent variable of this study was whether or not the traditional-age undergraduate students who completed their second year of study subsequently re-enrolled at a research extensive university in the Southern region of the United States for their third year as defined by their payment or non-payment of fees and inclusion or non-inclusion in the 14th class-day statistics.

The following objectives were formulated to guide the research study:

1. To describe traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
 - a) Age;
 - b) Gender;
 - c) Race/Ethnicity;
 - d) Overall high school grade point average (GPA);
 - e) College entrance examination (ACT/SAT composite scores);
 - f) High school academic grade point average (GPA);
 - g) Credit hours the student carried each semester;
 - h) Credit hours the student earned each semester;

- i) Cumulative college grade point average (GPA) as of or at the end of their second year;
 - j) College grade point average for the first semester of the first year;
 - k) Whether or not the student lived on campus;
 - l) Initial academic college of enrollment;
 - m) Whether or not the student changed major and if so the number of times changed;
 - n) Whether or not the student was a resident of the state;
 - o) Whether or not the student received one of the university's major academic scholarships;
 - p) Whether or not the student was involved in selected college-level student activities and organizations.
2. To describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
- a) Age;
 - b) Gender;
 - c) Race/Ethnicity;
 - d) Overall high school grade point average (GPA);
 - e) College entrance examination (ACT/SAT) composite scores;
 - f) High school academic grade point average (GPA);
 - g) Credit hours the student carried each semester;
 - h) Credit hours the student earned each semester;

- i) Cumulative college grade point average (GPA) as of or at the end of their second year;
 - j) College grade point average for the first semester of the first year;
 - k) Whether or not the student lived on campus;
 - l) Initial academic college of enrollment;
 - m) Whether or not the student changed major and if so the number of times changed;
 - n) Whether or not the student was a resident of the state;
 - o) Whether or not the student received one of the university's major academic scholarships;
 - p) Whether or not the student was involved in selected college-level student activities and organizations.
3. To compare the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and inclusion in the 14th class-day statistics to those traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at the same institution as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
- a) Age;
 - b) Gender;
 - c) Race/Ethnicity;
 - d) Overall high school grade point average (GPA);
 - e) College entrance examination (ACT/SAT) composite scores;

- f) High school academic grade point average (GPA);
 - g) Hours the student carried each semester;
 - h) Hours the student earned each semester;
 - i) Cumulative college grade point average (GPA) as of or at the end of second year;
 - j) College grade point average for the first semester of the first year;
 - k) Whether or not the student lived on campus;
 - l) Initial academic college of enrollment;
 - m) Whether or not the student changed major and if so the number of times changed;
 - n) Whether or not the student was a resident of the state;
 - o) Whether or not the student received one of the university's major academic scholarships;
 - p) Whether or not the student was involved in selected college-level student activities and organizations.
4. To determine if a model existed that significantly increased the researcher's ability to accurately explain the retention status of traditional-age, undergraduate students regarding whether or not they re-enrolled at for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment or non-payment of fees and inclusion or non-inclusion in the 14th class-day statistics from the following selected demographic and academic characteristics:
- a) Age;
 - b) Gender;
 - c) Race/Ethnicity;

- d) Overall high school grade point average (GPA);
- e) College entrance examination (ACT/SAT) composite scores;
- f) High school academic grade point average (GPA);
- g) Credit hours the student carried each semester;
- h) Credit hours the student earned each semester;
- i) Cumulative college grade point average (GPA) as of or at the end of their second year;
- j) College grade point average for the first semester of the first year;
- k) Whether or not the student lived on campus;
- l) Initial academic college of enrollment;
- m) Whether or not the student changed major and if so the number of times changed;
- n) Whether or not the student was a resident of the state;
- o) Whether or not the student received one of the university's major academic scholarships;
- p) Whether or not the student was involved in selected college-level student activities and organizations.

The enrollment data for the traditional-age, undergraduate students who had completed their second (sophomore) year at this research extensive university in the Southern region of the United States were collected from the database of the Office of Undergraduate Admissions and Student Aid following the 14th class-day of the fall 2005 semester. The researcher defined a “traditional-age, undergraduate student” as one who had successfully completed high school, applied for admission, met the admission requirements, and was enrolled at this research extensive university in the fall 2005 semester immediately after high school. This set of 4,254

students served as the accessible population for this study. The sample was defined as 100% of the accessible population.

Thus, there were 4,254 traditional-age, undergraduate students who were selected as the sample for this study. Out of these 4,254 enrolled students, there were 3,101 students who re-enrolled for their third year in the fall 2007 semester as defined by their payment of fees and inclusion in the 14th class-day statistics. The remaining 1,153 students were those who did not re-enroll for their third year in the fall 2007 semester as defined by their nonpayment of fees and non-inclusion in the 14th class-day statistics. In this chapter, the researcher presents the results of the study by objective.

Objective One Results

The first objective of this study was to describe traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:

- a) Age;
- b) Gender;
- c) Race/Ethnicity;
- d) Overall high school grade point average (GPA);
- e) College entrance examination (ACT/SAT composite scores);
- f) High school academic grade point average (GPA);
- g) Credit hours the student carried each semester;
- h) Credit hours the student earned each semester;
- i) Cumulative college grade point average (GPA) as of or at the end of the second year;

- j) College grade point average for the first semester of the first year;
- k) Whether or not the student lived on campus;
- l) Initial academic college of enrollment;
- m) Whether or not the student changed major and if so the number of times changed;
- n) Whether or not the student was a resident of the state;
- o) Whether or not the student received one of the university's major academic scholarships;
- p) Whether or not the student was involved in selected college-level student activities and organizations.

There were 3,101 traditional-age, undergraduate students who met the criteria of this objective. Following below are the results for each of these variables:

Age

Age was the first variable on which the students were described. The age of the student was measured as that student's age at the time of entry into the university in the fall 2005 semester. Since birth dates were available to the researcher, the age measurements were computed to the nearest month by subtracting their birth dates from the date of their entry into the university. The average age of the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester was 18.44 years (SD = .37). The overall age for this group of students ranged from 16.66 to 20.73 years.

Gender

Another variable on which the students were described was gender. Of the 3,101 traditional-age, undergraduate students who re-enrolled for their third year in fall 2007 semester,

1,679 students (54.1%) were identified as female, while 1,422 students (45.9%) were identified as male.

Race/Ethnicity

The third variable on which the study subjects were described was their race/ethnicity. Of the 3,101 traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States, the largest group ($n = 2,614$, 85.1%) identified themselves as White Non-Hispanic (Caucasian). The second largest group identified themselves as Black Non-Hispanic (African American) ($n = 246$, 8.0%). Thirty of the individuals (1.0%) either refused to provide information regarding their race/ethnicity, their race/ethnicity could not be determined, or the system did not recognize their race/ethnicity (see Table 2).

Table 2

Reported Race of Traditional-Age, Undergraduate Students Who Re-enrolled in Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Race	Frequency	Percent
White Non-Hispanic	2,614	85.1
Black Non-Hispanic	246	8.0
Asian	115	3.7
Hispanic	96	3.1
Total	3,071^a	100.0

^a Data regarding race was not available for thirty of the study subjects. Among these, seventeen refused to provide information on their race/ethnicity, the race/ethnicity of three students was undetermined, and the race/ethnicity of ten students could not be recognized by the system.

Overall High School Grade Point Average

The overall high school grade point average was the fourth variable that was used to describe the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States. Overall high school GPA was defined as the grade point average for all courses the student completed in high school. For students who graduated from one of the state's high schools, their overall high school GPA was submitted by the state's department of education to the study institution. For students who graduated from out-of-state high schools, their overall high school GPAs were stated on the students' high school transcript which was submitted to the study university by the students' high school.

Table 3

Overall High School Grade Point Averages (GPA) for Traditional-Age, Undergraduate Students Who Re-enrolled for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

High School GPA Range	Frequency	Percent
4.000	204	6.6
3.750 – 3.999	796	25.8
3.500 – 3.749	870	28.1
3.250 – 3.499	755	24.4
3.000 – 3.249	355	11.5
Less than 3.000	112	3.6
Total	3,092^a	100.00

Note. The mean high school GPA = 3.56 ($SD = .35$). GPA scores ranged from 2.280 to 4.000.

^a Overall high school GPA for 9 of the study subjects was not reported.

The mean high school grade point average for the retained students was 3.56 (SD = .35). The overall high school GPAs ranged from 2.28 to 4.00 for this group. When the overall high school GPA data were examined in ranges of measurements, the range of scores that had the largest number of students was 3.500 to 3.749 (n = 870, 28.1%). The distribution of the overall high school grade point average ranges is presented in Table 3.

College Entrance Examination (ACT/SAT Composite Score)

This study institution requires all applicants to submit a college entrance examination score report. The Office of Undergraduate Admissions and Student Aid accepts both the American College Testing (ACT) and Scholarstic Aptitude Test (SAT) scores to fulfill this requirement. For the purpose of this study, if a SAT score was submitted instead of an ACT score, the submitted SAT scores were converted to the ACT equivalent value using the “Concordance between SAT I Recentered V + M (Verbal + Math) Score and ACT Composite Score Table” (see Appendix B). This examination score (composite ACT score) was another variable used in the study to describe these traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester.

For students who submitted more than one score report to the University’s Office of Undergraduate Admissions and Student Aid, the institution used the students’ highest score report for admission and scholarship consideration. Therefore, this study reflects the highest composite ACT score or SAT converted score to ACT equivalent score for students who submitted more than one score report. The mean composite score on this variable was 25.48 (SD = 3.25) for the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester. The highest number of students (n = 991, 32.0%) had ACT composite scores in the range of 22 – 24, while the second highest number of students (n = 975, 31.4%) had ACT composite scores between 25 and 27. The lowest number of students (n = 20, .6%) had ACT

composite scores of 34 or more. The ACT scores in the ranges of measurement for this group of students are presented in Table 4.

High School Academic Grade Point Average

High school academic grade point average (HSAGPA) was the sixth variable that was used to describe the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester. The high school academic GPA was defined as the grade point average on units required for admission to the research-extensive university. This was calculated on a 4.00 scale by the Office of Undergraduate Admissions and Student Aid on the grades earned from all completed high school academic courses (English, mathematics, natural sciences, social sciences, foreign languages, computer studies, and visual and performing arts).

Table 4

Composite Scores on the American College Testing (ACT) for Traditional-Age, Undergraduate Students Who Re-enrolled for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

ACT New Score	Frequency	Percent
34 or more	20	.7
31 – 33	212	6.8
28 – 30	592	19.1
25 – 27	975	31.4
22 – 24	991	32.0
21 or less	311	10.0
Total	3101	100.0

Note. The mean ACT composite score was 25.48 (SD = 3.25). The ACT scores ranged from 15 to 36.

The mean high school academic GPA was 3.34 ($SD = 1.45$) for these traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester. High school academic GPAs ranged from a low of 1.98 to a high of 4.00 for this group of students. Examination of the high school academic GPA data in Table 5 provides the number of students who had high school academic GPAs in selected groupings or categories. The largest group of students who re-enrolled for their third year in the fall 2007 semester ($n = 720$, 23.3%) had high school academic GPAs in the 3.250 to 3.499 category. The category with the second largest number of participants ($n = 638$, 20.6%) was the GPA range of 3.500 - 3.749, while the category with the least number of students ($n = 215$, 7.0%) was a GPA of 4.00. The distribution of all of these ranges is presented in Table 5.

Table 5

High School Academic Grade Point Averages (GPA) for Traditional-Age, Undergraduate Students Who Re-enrolled for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Academic GPA Range	Frequency	Percent
4.000	215	7.0
3.750 – 3.999	557	18.0
3.500 – 3.749	638	20.6
3.250 – 3.499	720	23.3
3.000 – 3.249	590	19.1
Less than 3.000	372	12.0
Total	3,092^a	100.0

Note. The mean high school academic GPA was 3.34 ($SD = 1.45$). GPA scores ranged from 1.980 to 4.000.

^a GPA scores for 9 of the study subjects were not reported.

Credit Hours the Student Carried Each Semester

Credit hours the student carried each semester of enrollment was another characteristic used to describe subjects of the study. The measurement for the number of credit hours carried was defined as the total number of graded credits for which the student was enrolled through the completion of the semester. This excluded courses in which the student was enrolled for a Pass/Fail grade. The data presented for this measurement include the number of credit hours students carried while enrolled during each semester and the categories of number of hours carried by the students, their frequencies, and percentages. In addition, the overall mean number of hours carried by students during the semesters in which they were enrolled and their respective standard deviations are provided.

In each semester, the category of carried hours with the largest number of students was 15-17 (see Table 6). The category of carried hours with the second largest number of students in each semester was 12-14. Except for fall 2006 semester ($M = 15.08$, $SD = 3.19$), the mean hours carried by students in the three other semesters was similar. The overall mean hours carried by students was 14.44 ($SD = 2.60$) per semester. The overall mean maximum credit hours carried by students ranged from 0 to 28.

Credit Hours the Student Earned Each Semester

Credit hours a student earned each semester was another characteristic on which the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States were described. For the number of credit hours earned, the measurement was defined as the total number of all academic hours for which the student received credit each semester. This included all courses, both graded and un-graded (Pass/Fail) as well as credits for which the student completed an advanced placement examination.

Table 6

Credit Hours Carried Each Semester by Traditional-Age, Undergraduate Students Who Re-enrolled for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Semester	Hours Carried Category	Frequency	Percent	Mean	SD	Min.	Max.
Fall 2005	Less than 12	150	4.9	14.19	2.177	0	24
	12 – 14	1138	36.7				
	15 – 17	1705	55.0				
	18 – 20	100	3.2				
	21 or more	7	.2				
	Total	3100^a	100.0				
Spring 2006	Less than 12	152	4.9	14.25	2.318	0	27
	12 – 14	1146	37.2				
	15 – 17	1618	52.5				
	18 – 20	164	5.3				
	21 or more	3	.1				
	Total	3083^b	100.0				
Fall 2006	Less than 12	151	5.0	15.08	3.192	0	28
	12 – 14	955	31.4				
	15 – 17	1381	45.4				
	18 – 20	360	11.8				
	21 or more	194	6.4				
	Total	3041^c	100.0				
Spring 2007	Less than 12	162	5.3	14.23	2.703	0	21
	12 – 14	1105	36.5				
	15 – 17	1560	51.5				
	18 – 20	193	6.4				
	21 or more	8	.3				
	Total	3028^d	100.0				
	Overall	3063	100.0	14.44	2.597	0	28

Note. The mean hours carried was 14.44 (SD = 2.60). The hours carried ranged from 0 to 28.

^a One student had missing information on credit hours carried during fall 2005 semester.

^b Eighteen students had missing information on credit hours carried in the spring 2006 semester.

^c Sixty students had missing information on credit hours carried during fall 2006 semester

^d Seventy-three students had missing information on credit hours carried during spring 2007 semester.

The data presented for this measurement include categories of credit hours earned by students, frequencies, percentages, their means, and standard deviations for the first two years of study. In addition, the overall mean number of hours earned by students during the semesters in which they were enrolled is provided. Data in Table 7 indicate that the means (average hours earned) are inconsistent (e.g., in fall 2005, hours earned ranged from 0 to 83) throughout the students' first two years. Throughout the first two years, most students maintained full-time status by earning twelve or more hours per semester. The overall mean hours earned was 15.86 ($SD = 5.08$) per semester (see Table 7).

In the fall 2005 semester, the category of earned hours with the second largest number of students was 15-17. Except for fall 2005 semester ($M = 21.44$, $SD = 9.97$), the mean hours earned by students in the three other semesters was nearly the same. The overall mean hours earned by students was 15.86 ($SD = 2.60$) per semester. In each semester, except for the fall 2005, the category of earned hours with the largest number of students was 15-17. The category of earned hours with the second largest number of students in spring 2006, fall 2006 and spring 2007 semesters was 12-14. The distribution of credit hours earned by students each semester is presented in Table 7.

Cumulative College Grade Point Average at the End of the Second Year

The cumulative college grade point averages (GPAs) at the end of the second year, was another characteristic on which traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States were described. These cumulative college GPAs ranged from 0.00 to 4.00 at the end of the student's second year. Table 8 provides a categorized summary of the cumulative college grade point averages at the end of the students' second year.

Table 7

Credit Hours Earned Each Semester by Traditional-Age, Undergraduate Students Who Re-enrolled for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Semester	Hours Earned Category	Frequency	Percent	Mean	SD	Min	Max
Fall 2005	Less than 12	102	3.3				
	12 – 14	437	14.1				
	15 – 17	688	22.2				
	18 – 20	572	18.4				
	21 or more	1301	42.0				
	Total	3100^a	100.0	21.44	9.97	0	83
Spring 2006	Less than 12	425	13.8				
	12 – 14	1108	35.9				
	15 – 17	1334	43.3				
	18 – 20	190	6.2				
	21 or more	26	.8				
	Total	3083^b	100.0	13.68	3.22	0	46
Fall 2006	Less than 12	328	10.8				
	12 – 14	898	29.5				
	15 – 17	1299	42.7				
	18 – 20	338	11.1				
	21 or more	178	5.9				
	Total	3041^c	100.0	14.64	3.71	0	38
Spring 2007	Less than 12	391	12.9				
	12 – 14	1029	34.0				
	15 – 17	1415	46.7				
	18 – 20	180	6.0				
	21 or more	13	.4				
	Total	3028^d	100.0	13.70	3.43	0	27
	Overall	3063	100.0	15.86	5.08	0	83

Note. The overall mean hours earned was 15.86 (SD = 5.08). Credit hours earned ranged from 0 to 83.

^a One student had missing information on credit hours earned during fall 2005 semester.

^b Eighteen students had missing information on credit hours earned during spring 2006 semester.

^c Sixty students had missing information on credit hours earned during fall 2006 semester

^d Seventy-three students had information on credit hours earned during spring 2007 semester.

Examination of Table 8 shows that at the end of the second year, the largest group ($\underline{n} = 996$, 32.6%) of traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester had cumulative college GPAs in the range of 3.000 to 3.499. The second largest group of retained students ($\underline{n} = 807$, 26.4%) had cumulative college GPAs in the range of 2.500 to 2.999. Overall, more than 50% of the retained students had cumulative college GPAs ranging between 3.000 and 3.999. The overall mean cumulative GPAs of this group of students was 3.06 ($\underline{SD} = .56$).

College Grade Point Average for the First Semester of the First Year

College grade point average for the first semester of the first year was another characteristic used to describe traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States. This variable was defined as the student's overall grade point average at the end of the first semester of their first year at the study institution. The college GPA's for the first semester of the first year ranged from 0 to 4.00. Table 9 presents a categorized summary of college grade point averages for traditional-age, undergraduate students who re-enrolled for their third year.

Examination of Table 9 shows that at the end of the first semester of the first year, the largest group ($\underline{n} = 979$, 31.6%) of traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester had cumulative college GPAs in the range of 3.000 to 3.499. The second largest group of retained students ($\underline{n} = 650$, 21.0%) had cumulative college GPAs in the range of 2.500 to 2.999. Overall, more than three quarters of the retained students had first semester of the first year college GPAs ranging between 2.500 and 4.000. The mean first semester of the first year college GPA was 3.06 ($\underline{SD} = .70$).

Table 8

Cumulative College Grade Point Averages at the End of the Second Year for Traditional-Age, Undergraduate Students Who Re-enrolled for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Cumulative College GPA Range	Frequency	Percent
4.000	74	2.4
3.500 – 3.999	700	22.9
3.000 – 3.499	996	32.6
2.500 – 2.999	807	26.4
2.000 – 2.499	355	11.6
1.500 – 1.999	112	3.7
1.000 – 1.499	9	.3
Less than 1.000	4	.1
Total	3,057^a	100.0

Note. The mean GPA was 3.06 (SD = .56). GPA scores ranged from .25 to 4.00.

^a Forty-four students (1.4%) had missing information on cumulative college GPAs at end of their second year.

Whether or Not the Student Lived On Campus

Another variable on which traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at this research extensive university were described was whether or not the students lived on campus. Slightly more than one half of students lived on campus during their first year (n = 1787, 57.6%). A substantial number of this group of students (n = 1314, 42.4%) did not live on campus during their first year. During their second year, however, the majority of the students (n = 2,573, 83.0%) did not live on campus. Only a small number of students lived on campus during their second year (n = 528, 17%).

Table 9

College Grade Point Averages for the First Semester of the First Year for Traditional-Age, Undergraduate Students Who Re-enrolled for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Fall 2005 College GPA Range	Frequency	Percent
4.000	303	9.8
3.500 – 3.999	568	18.3
3.000 – 3.499	979	31.6
2.500 – 2.999	650	21.0
2.000 – 2.499	391	12.6
1.500 – 1.999	135	4.4
1.000 – 1.499	48	1.5
Less than 1.000	26	.8
Total	3,100^a	100.0

Note. The mean GPA was 3.06 (SD = .70). GPA scores ranged from 0 to 4.00.

^a One student had missing information on the first semester of the first year college GPA.

Initial Academic College of Enrollment

Another variable used to describe the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at this research extensive university was the students' initial academic college of enrollment at the end of their second year. Regarding the students' initial academic college of enrollment, 194 traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at this research extensive university in the Southern region of the United States did not decide on their initial academic college of enrollment in their first year. Of the 2,907 students who had decided on an initial academic college of enrollment in their first year, the largest group of students (n = 654, 22.5%) initially

enrolled in programs in the College of Basic Sciences. The second largest group of students ($\underline{n} = 507$, 17.4%) were enrolled in programs in the College of Arts and Sciences in their first year. The smallest number of students ($\underline{n} = 40$, 1.4%) were enrolled in the College of Music and Dramatic Arts in their first year. The distribution of student enrollment in respective academic colleges is presented in Table 10.

Table 10

Initial Academic College of Enrollment at the End of the First Year for Traditional-Age, Undergraduate Students Who Re-enrolled for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Initial Academic College of Enrollment	Frequency	Percent
Basic Sciences	654	22.5
Arts & Sciences	507	17.4
Business	469	16.1
Engineering	420	14.5
Mass Communication	232	8.0
Education	186	6.4
Agriculture	151	5.2
Art & Design	149	5.1
UCAC	99	3.4
Music & Dramatic Arts	40	1.4
Total	2,907^a	100.0

^a Data regarding initial academic college of enrollment was not available for one hundred-ninety four of the study subjects. Among these, one hundred-ninety three students were undecided on their initial academic college of enrollment, and one student had missing information on initial academic college of enrollment.

Whether or Not the Student Changed Major

Whether or not the students changed major during their first and second years at the study institution and the number of times they changed their major was another characteristic used to describe the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States. Of the 3,101 traditional-age, undergraduate students who re-enrolled for their third year, a high percentage ($n = 2,030$, 65.5%) changed their major. Slightly over one third of this group of students ($n = 1,071$, 34.5%) did not change their major. When the number of times the students changed their major was examined, a high percentage of traditional-age, undergraduate students ($n = 1274$, 41.1%) who re-enrolled for their third year in the fall 2007 semester changed their major once. A small percentage of this group ($n = 756$, 24.4%) changed their major twice. The mean number of times this group changed major was .90 ($SD = .76$).

Whether or Not the Student Was a Resident of the State

Another characteristic on which the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States were described was whether or not they were residents of the state in which the study institution was located. When students were described on this variable, the majority of the students ($n = 2621$, 84.5%) were residents of the state in which the research-extensive university was located. The remaining 480 students (15.5%) were classified as non-resident or out-of-state students.

Whether or Not the Student Received One of the University's Major Academic Scholarships

Another variable on which the students were described was whether or not the student received one of the university's major academic scholarships. Below are the five major academic scholarships included in this category and a brief description of each:

- (1) Chancellor's Alumni Scholarship - most prestigious award offered to the top 10 students who have at least a 3.50 scholastic grade point average and at least a 33 ACT or 1460 SAT.
- (2) Alumni Association Top 100 Scholarship - award that is offered to the next 100 top students who have at least a 3.50 scholastic grade point average and at least a 32 ACT or 1410 SAT.
- (3) Distinguished Freshman Award - award that is offered to students who have been designated as National Merit Finalists (college-sponsored) and have indicated this study institution as their first-choice institution.
- (4) Centennial Award - award that is offered to the state's residents who have been designated as National Merit Semifinalists or have a 3.00 scholastic grade point average and a 30 ACT or 1320 SAT.
- (5) Golden Oaks Award - award that is offered to nonresident students who were selected as recipients of the Chancellor's Alumni Scholarship, the Alumni Association Top 100 Scholarship, or Distinguished Freshman Award or have been designated as a National Merit Semifinalist. In addition, nonresident students who have at least a 3.00 scholastic grade point average and at least a 30 ACT or 1320 SAT are considered for this award.

Of the 3,101 traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at this research extensive university in the Southern region of the United States, less than one quarter of the students ($n = 555$, 17.9%) received at least one of the university's five major academic scholarships. The majority of the students ($n = 2,546$, 82.1%) did not receive one of the university's five major academic scholarships.

Whether or Not the Student Was Involved in Selected College-Level Student Activities and Organizations

The last variable that was used to describe traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research-extensive university in the Southern region of the United States was whether or not the study participants were involved in selected student activities and organizations. The only organization in the study institution for which data was available was the Greek system. Of the 3,101 students who re-enrolled for their third year in fall 2007 semester, nearly three quarters ($n = 2305$, 74.3%) were not involved in the

Greek system. The rest of the students ($n = 796$, 25.7%) were involved in one of the Greek societies, either as active members ($n = 77$, 2.5%) or as pledged members ($n = 719$, 23.2%).

Objective Two Results

The second objective of this study was to describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:

- a) Age;
- b) Gender;
- c) Race/Ethnicity;
- d) Overall high school grade point average (GPA);
- e) College entrance examination (ACT/SAT composite scores);
- f) High school academic grade point average (GPA);
- g) Credit hours the student carried each semester;
- h) Credit hours the student earned each semester;
- i) Cumulative college grade point average (GPA) as of or at the end of the second year;
- j) College grade point average for the first semester of the first year;
- k) Whether or not the student lived on campus;
- l) Initial academic college of enrollment;
- m) Whether or not the student changed major and if so the number of times changed;
- n) Whether or not the student was a resident of the state;

- o) Whether or not the student received one of the university's major academic scholarships;
- p) Whether or not the student was involved in selected college-level student activities and organizations.

There were 1,153 traditional-age, undergraduate students who met the criteria of this objective. Following below are the results for each of these variables:

Age

Age was the first variable on which the students were described. The age of the student was measured as that student's age at the time of entry into the university in the fall 2005 semester. Since birth dates were available to the researcher, the age measurements were computed to the nearest month by subtracting their birth date from the date of their entry into the university. The average age of traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester was 18.46 years (SD = .40). The overall age for this group of students ranged from 16.74 to 21.37 years.

Gender

Another variable on which the students were described was gender. Of the 1,153 traditional-age, undergraduate students who did not re-enroll for their third year in fall 2007 semester, 651 students (56.5%) were identified as female while 502 students (43.5%) were identified as male.

Race/Ethnicity

The third variable on which the study subjects were described was their race/ethnicity. Of the 1,153 traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at this research extensive university in the Southern region of the United States, the largest group (n = 954, 84.5%) were identified as White Non-Hispanic. Students who

identified themselves as Black Non-Hispanic were the second largest group ($\underline{n} = 92$, 8.1%). The number of students who identified themselves as Asian was the least ($\underline{n} = 37$, 3.3%). The remaining 24 individuals either refused to provide information regarding their race/ethnicity, their race/ethnicity could not be determined, or the system did not recognize their race/ethnicity (see Table 11).

Table 11

Reported Race/Ethnicity of Traditional-Age, Undergraduate Students Who Did Not Re-enroll for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Race	Frequency	Percent
White Non-Hispanic	954	84.5
Black Non-Hispanic	92	8.1
Hispanic	46	4.1
Asian	37	3.3
Total	1,129^a	100.0

^aData regarding race/ethnicity was not available for thirty of the study subjects. Among these, fourteen refused to provide information on their race/ethnicity, the race/ethnicity of one student was undetermined, and the race/ethnicity of nine students could not be recognized by the system.

Overall High School Grade Point Average

The overall high school grade point average (GPA) was the fourth variable that was used to describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester. The overall high school GPA was defined as the grade point average for all courses completed in high school prior to admission to the university. For students who graduated from one of the state's high schools, their overall high school GPA was submitted by the state's department of education to the study institution. For students who graduated from an out-of-state high school, their overall high school GPA was stated on the student's high school

transcript which was submitted to the study university by the student's high school. The mean overall high school GPA for this group of students was 3.324 ($SD = 1.28$). The overall high school GPAs ranged from 2.150 to 4.000 for this group.

Examination of the overall high school GPA measurements indicates the largest number of students had their high school GPAs in the range of 3.250 - 3.499 ($n = 330$, 28.6%). The second largest group of students had their high school GPAs in the range of 3.500 to 3.749 ($n = 280$, 24.3%). The least number of students ($n = 40$, 3.5%) had high school GPAs of 4.000. The distribution of the overall high school grade point average ranges is presented in Table 12.

Table 12

Distribution of Overall High School Grade Point Averages (GPA) for Traditional-Age, Undergraduate Students Who Did Not Re-enroll for Their Third Year in the Fall 2007 Semester at a Research Extensive University in the Southern Region of the United States.

High School GPA Range	Frequency	Percent
4.000	40	3.5
3.750 – 3.999	193	16.7
3.500 – 3.749	280	24.3
3.250 – 3.499	330	28.6
3.000 – 3.249	208	18.0
< 3.000	102	8.9
Total	1,153	100.00

Note. The mean high school GPA was 3.32 ($SD = 1.28$). GPA scores ranged from 2.15 to 4.00.

College Entrance Examination (ACT/SAT Composite Score)

This study institution requires all applicants to submit a college entrance examination score report. The Office of Undergraduate Admissions and Student Aid of the study institution accepts both the American College Testing (ACT) and Scholarstic Aptitude Test (SAT) scores to fulfill this requirement. For the purpose of this study, if an SAT score was submitted instead of an ACT score, the submitted SAT scores were converted to the ACT equivalent value using the “Concordance between SAT I Recentered V + M (Verbal + Math) Score and ACT Composite Score Table” (see Appendix B). This examination was another variable used in this study to describe the traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research-extensive university in the Southern region of the United States.

For students who submitted more than one score report to the University’s Office of Undergraduate Admissions, the institution used the students’ highest score report for admission and scholarship consideration. Therefore, this study reflects the highest composite ACT score or SAT converted score to ACT equivalent score for students who submitted more than one score report. The mean composite score on this variable was 24.47 (SD = 3.04) for traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester. The ACT scores in the ranges of measurement for this group of students is presented in Table 13.

The highest number of traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester (n = 441, 38.2%) had ACT composite scores in the range of 22 – 24, while the second highest number of students (n = 355, 30.8%) had ACT composite scores between 25 and 27. The lowest number of students (n = 4, .6%) had ACT composite scores of 34 or more.

Table 13

Composite Scores on the American College Testing (ACT) for Traditional-Age, Undergraduate Students Who Did Not Re-enroll for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

ACT New Score	Frequency	Percent
34 or more	4	.4
31 – 33	32	2.8
28 – 30	149	12.9
25 – 27	355	30.8
22 – 24	441	38.2
21 or less	172	14.9
Total	1,153	100.0

Note. The mean ACT composite score was 24.47 (SD = 3.04). ACT scores ranged from 15 to 34.

High School Academic Grade Point Average

High school academic grade point average (HSAGPA) was another variable that was used to describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at this research extensive university in the Southern region of the United States. The high school academic GPA was defined as the grade point average on units required for admission to the research-extensive university. This was calculated on a 4.00 scale by the institution's Office of Undergraduate Admissions and Student Aid on the grades earned from all completed high school academic courses (English, mathematics, natural sciences, social sciences, foreign languages, computer studies, and visual and performing arts). The mean high school academic GPA for these traditional-age, undergraduate students who did not re-enroll for

their third year in the fall 2007 semester was 3.24 ($SD = .57$). High school academic GPAs for this group of students ranged from 0.00 to 4.00.

Examination of the high school academic GPA data in Table 14 provides the number of students who had academic GPAs in selected groupings or categories. The largest group of students who did not re-enroll for their third year in the fall 2007 semester ($n = 277$, 24.0%) had high school academic GPAs in the less than 3.000 category. The category with the second largest number of students ($n = 268$, 23.2%) was the GPA range of 3.000 - 3.249. The distribution of all of these ranges is presented in Table 14.

Table 14

High School Academic Grade Point Averages (GPA) for Traditional-Age, Undergraduate Students Who Did Not Re-enroll for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Academic GPA Range	Frequency	Percent
4.000	44	3.8
3.750 – 3.999	125	10.8
3.500 – 3.749	191	16.6
3.250 – 3.499	248	21.5
3.000 – 3.249	268	23.3
Less than 3.000	277	24.0
Total	1,153	100.0

Note. The mean high school academic GPA was 3.24 ($SD = .57$). GPA scores ranged from 0.00 to 4.00.

Credit Hours the Student Carried Each Semester

Credit hours carried each semester of enrollment was another characteristic used to describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at this research-extensive university in the Southern region of the United States. The measurement for the number of credit hours carried was defined as the total number of graded credits for which the student was enrolled through the completion of the semester. This excluded credit units in which the student was enrolled for a Pass/Fail grade. The data presented for this measurement include the number of credit hours students carried while enrolled during each semester and the categories of the number of hours carried by the students, their frequencies, and percentages.

In addition, the overall mean number of hours carried by students during the semesters in which they were enrolled and their respective standard deviations are provided. The overall mean hours carried was 12.56 (SD = 4.09) per semester. In each semester, the category of carried hours with the largest number of students was 12-14. The category of carried hours with the second largest number of students in each semester was 15-17. Except for fall 2006 semester (M = 13.03, SD = 4.46), the mean hours carried by students in the three other semesters was similar. The overall mean hours carried by students was 12.57 (SD = 4.06) per semester. The information on credit hours carried is presented in Table 15.

Credit Hours the Student Earned Each Semester

Credit hours a student earned each semester was another characteristic on which traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States were described. For the number of credit hours earned, the measurement was defined as the total number of all academic hours for which the student received credit each semester.

Table 15

Credit Hours Carried Each Semester by Traditional-Age, Undergraduate Students Who Did Not Re-enroll for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Semester	Hours Carried (Category)	Frequency	Percent	Mean	SD	Min	Max
Fall 2005	Less than 12	194	16.9	12.39	3.74	0	21
	12 – 14	572	49.8				
	15 – 17	363	31.6				
	18 – 20	18	1.6				
	21 or more	2	.1				
	Total	1149^a	100.0				
Spring 2006	Less than 12	154	17.1	12.53	3.97	0	24
	12 – 14	416	46.1				
	15 – 17	301	33.4				
	18 – 20	30	3.3				
	21 or more	1	.1				
	Total	902^b	100.0				
Fall 2006	Less than 12	79	17.3	13.03	4.46	0	34
	12 – 14	209	45.7				
	15 – 17	119	26.0				
	18 – 20	35	7.7				
	21 or more	15	3.3				
	Total	457^c	100.0				
Spring 2007	Less than 12	50	18.2	12.28	4.20	0	21
	12 – 14	139	50.5				
	15 – 17	74	26.9				
	18 – 20	11	4.0				
	21 or more	4	.4				
	Total	275^d	100.0				
	Overall	696	100.0	12.57	4.06	0	34

Note. The overall mean credit hours carried was 12.57 (SD = 4.06). Credit hours carried ranged from 0 to 34.

^a Four students had missing information on credit hours carried during fall 2005 semester.

^b Two hundred-fifty one (21.8%) of the students had missing information on credit hours they carried in the spring 2006 semester.

^c Six hundred-ninety six (60.4%) of the students had missing information on credit hours they carried during fall 2006 semester.

^d Eighty hundred-seventy eight students had missing information on credit hours they carried during spring 2007 semester.

This included all courses, both graded and un-graded (Pass/Fail) as well as credits for which the student completed an advanced placement examination. The data presented for this measurement include categories of credit hours earned by students, frequencies, percentages, their means, and standard deviations for the first two years of study. In addition, the overall mean number of hours earned by students during the semesters in which they were enrolled is provided. Throughout the first two years, except for fall 2005, most students earned less than twelve hours per semester. The overall mean hours earned was 11.75 ($\underline{SD} = 6.03$). In each semester, except for the fall 2005, a large proportion of the non-retained students earned less than 12 hours.

The category of earned hours with the second largest number of students in spring 2006, fall 2006 and spring 2007 semesters was 12-14. In the fall 2005 semester, the category of earned hours with the largest number of students was 15-17. The mean credit hours earned by this group of students in the fall 2005 semester was much higher ($\underline{M} = 15.21$, $\underline{SD} = 7.84$), while mean credit hours earned by students was lower in spring 2007 ($\underline{M} = 9.96$, $\underline{SD} = 5.48$). The distribution of credit hours earned by students each semester is presented in Table 16.

Cumulative College Grade Point Average at the End of the Second Year

The cumulative college grade point averages (GPAs) at the end of the second year was another characteristic on which traditional-age, undergraduate students who did not re-enroll for their third year in the fall of 2007 semester at a research extensive university in the Southern region of the United States were described. These cumulative college GPA's ranged from 0.00 to 4.00 at the end of the student's second year. Table 16 provides a categorized summary of the cumulative college grade point averages at the end of second year.

Table 16

Credit Hours Earned Each Semester by Traditional-Age, Undergraduate Students Who Did Not Re-enroll for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Semester	Hours Earned (Category)	Frequency	Percent	Mean	SD	Min	Max
Fall 2005	Less than 12	266	23.2				
	12 – 14	247	21.5				
	15 – 17	251	21.8				
	18 – 20	164	14.3				
	21 or more	221	19.2				
	Total	1,149^a	100.0	15.21	7.84	0	59
Spring 2006	Less than 12	346	38.4				
	12 – 14	304	33.7				
	15 – 17	224	24.8				
	18 – 20	22	2.4				
	21 or more	6	.7				
	Total	902^b	100.0	10.61	5.35	0	34
Fall 2006	Less than 12	163	35.7				
	12 – 14	163	35.7				
	15 – 17	92	20.1				
	18 – 20	29	6.3				
	21 or more	10	2.2				
	Total	457^c	100.0	11.20	5.43	0	35
Spring 2007	Less than 12	120	43.6				
	12 – 14	96	34.9				
	15 – 17	49	17.8				
	18 – 20	9	3.3				
	21 or more	1	.4				
	Total	275^d	100.0	9.96	5.48	0	29
	Overall	696	100.0	11.75	6.03	0	59

Note. The mean semester hours earned was 11.75 (SD = 6.03). Semester hours earned ranged from 0 to 59.

^a Four students had missing information on credit hours they earned during fall 2005 semester.

^b Two hundred-fifty one students had missing information on credit hours they earned during spring 2006 semester.

^c Six hundred-ninety six students had missing information on credit hours they earned during fall 2006 semester.

^d Eighty hundred-seventy eight students had information on credit hours they earned during spring 2007 semester.

Three quarters ($\underline{n} = 863$, 74.8%) of traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester did not have information on their cumulative college GPAs. Only one quarter of this group of students had data on their cumulative college GPAs. Out of this number, the largest majority ($\underline{n} = 71$, 24.5%) had their cumulative college GPAs in the range of 2.000 to 2.499. The second largest group of non-retained students ($\underline{n} = 55$, 19.0%) had cumulative college GPAs in the range of 2.500 to 2.999. Overall, most of the non-retained students had cumulative college GPAs ranging from 1.500 and 3.499 (see Table 17).

Table 17

Cumulative College Grade Point Averages at the End of the Second Year for Traditional-Age, Undergraduate Students Who Did Not Re-enroll for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Cumulative College GPA Range	Frequency	Percent
4.000	3	1.0
3.500 – 3.999	40	13.8
3.000 – 3.499	47	16.2
2.500 – 2.999	55	19.0
2.000 – 2.499	71	24.5
1.500 – 1.999	50	17.2
1.000 – 1.499	17	5.9
Less than 1.000	7	2.4
Total	290^a	100.0

Note. The mean college GPA was 2.54 ($\underline{SD} = .81$). College GPA scores ranged from 0.00 to 4.00.

^a Data regarding cumulative college GPAs was not available for eight-hundred sixty three of the study subjects at the end of the second year.

College Grade Point Average for the First Semester of the First Year

College grade point average for the first semester of the first year was another characteristic used to describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States. This variable was defined as the student's overall grade point average at the end of the first semester of the first year at the institution. The college GPA for the first semester of the first year ranged from 0 to 4.00. Table 18 presents a categorized summary of first semester college grade point averages for traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester.

Examination of Table 18 shows that at the end of the first semester of the first year, the largest group ($\underline{n} = 210$, 18.2%) of traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester had cumulative college GPAs in the range of 2.500 to 2.999. The second largest group of non-retained students ($\underline{n} = 202$, 16.6%) had cumulative college GPAs in the range of 2.00 to 2.499. Overall, most of the non-retained students had the first semester college GPAs ranging between 2.500 and 4.000 during their freshman year. Information on first semester college GPA for this group of students is presented in Table 18.

Whether or Not the Student Lived On Campus

Another variable on which the traditional-age undergraduate students who did not re-enroll for their third year in the fall 2007 semester at this research extensive university were described was whether or not they lived on campus. Slightly less than one quarter of this group of students lived on campus during their first year ($\underline{n} = 245$, 21.2%). A substantial number of the students ($\underline{n} = 908$, 78.8%) did not live on campus during their first year. In their second year, the majority of the students ($\underline{n} = 1108$, 96.1%) did not live on campus. Very few students in this

group lived on campus during their second year ($n = 45$, 3.9%). [The mean GPA for this group of students was 2.18 ($SD = 1.10$)].

Table 18

College Grade Point Averages for the First Semester of the First Year for Traditional-Age, Undergraduate Students Who Did Not Re-enroll for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States.

Fall 2005 College GPA Range	Frequency	Percent
4.000	35	3.0
3.500 – 3.999	99	8.6
3.000 – 3.499	191	16.6
2.500 – 2.999	210	18.3
2.000 – 2.499	202	17.6
1.500 – 1.999	133	11.6
1.000 – 1.499	108	9.4
Less than 1.000	171	14.9
Total	1,149^a	100.0

Note. The mean college GPA was 2.18 ($SD = 1.10$). First semester college GPA scores ranged from 0 to 4.00.

^a Data regarding college GPA for the first semester of the first year was not available for four of the study subjects.

Initial Academic College of Enrollment

Another variable used to describe the traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at this research-extensive university was the students' initial academic college of enrollment at the end of their second year. Regarding the students' initial academic college of enrollment, 67 traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at this research extensive university

in the Southern region of the United States did not decide on initial academic college of enrollment in their first year. Of the 1,082 students who decided on initial academic college of enrollment in their first year, the largest group of subjects ($\underline{n} = 245$, 22.6%) were enrolled in programs in the College of Basic Sciences.

Table 19

Initial Academic College of Enrollment for Traditional-Age, Undergraduate Students Who Did Not Re-enroll for Their Third Year in the Fall of 2007 Semester at a Research Extensive University in the Southern Region of the United States at the End of Their First Year.

Initial Academic College of Enrollment	Frequency	Percent
Basic Sciences	245	22.6
Arts & Sciences	195	18.0
Business	158	14.6
Engineering	127	11.7
UCAC	124	11.5
Education	77	7.1
Agriculture	48	4.4
Art & Design	46	4.3
Mass Communication	43	4.0
Music & Dramatic Arts	19	1.8
Total	1,082^a	100.0

^aData regarding initial academic college of enrollment was not available for seventy-one of the study subjects. Of these, sixty-seven students were undecided on their initial academic college of enrollment in the first year, while four students had missing information on their initial academic college of enrollment.

The second largest group of students ($\underline{n} = 195$, 18.0%) were enrolled in programs in the College of Arts and Sciences in their first year. The least number of students ($\underline{n} = 19$, 1.8%) were enrolled in programs in the College of Music and Dramatic Arts in their first year. The

distribution of student enrollment in programs in the respective academic colleges is presented in Table 19.

Whether or Not the Student Changed Major

Whether or not the students changed major during their first and second years at the study institution was another characteristic used to describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States. Of the 1,153 traditional-age, undergraduate students who did not re-enroll for their third year, a high percentage ($n = 936$, 81.5%) did not change their major. Very few of this group ($n = 213$, 18.5%) changed their major. The mean number of times this group changed major was .19 ($SD = .39$). The number of times students changed their major ranged from 0 to 1.

Whether or Not the Student Was a Resident of the State

Another characteristic used to describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States was whether or not the students were residents of the state. When students were described on this variable, more than three quarters of the students ($n = 932$, 80.8%) were residents of the state in which the research-extensive university was located. The remaining 221 students (19.2%) were classified as non-resident or out-of-state students.

Whether or Not the Student Received One of the University's Major Academic Scholarships

Another variable used to describe traditional-age undergraduate students who did not re-enroll for their third year in the fall 2007 semester at this research extensive university in the Southern region of the United States was whether or not the student received one of the university's major academic scholarships. Below are the five major scholarships included in this category and a brief description of each:

- (1) Chancellor's Alumni Scholarship - most prestigious award offered to the top 10 students who have at least a 3.50 scholastic grade point average and at least a 33 ACT or 1460 SAT.
- (2) Alumni Association Top 100 Scholarship - award that is offered to the next 100 top students who have at least a 3.50 scholastic grade point average and at least a 32 ACT or 1410 SAT.
- (3) Distinguished Freshman Award - award that is offered to students who have been designated as National Merit Finalists (college-sponsored) and have indicated this study institution as their first-choice institution.
- (4) Centennial Award - award that is offered to the state's residents who have been designated as National Merit Semifinalists or have a 3.00 scholastic grade point average and a 30 ACT or 1320 SAT.
- (5) Golden Oaks Award - award that is offered to nonresident students who were selected as recipients of the Chancellor's Alumni Scholarship, the Alumni Association Top 100 Scholarship, or Distinguished Freshman Award or have been designated as a National Merit Semifinalist. In addition, nonresident students who have at least a 3.00 scholastic grade point average and at least a 30 ACT or 1320 SAT are considered for this award.

Of the 1,153 traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at this research extensive university in the Southern region of the United States, very few students ($\underline{n} = 123$, 10.7%) received one of the university's five major academic scholarships. The majority of the students ($\underline{n} = 1030$, 89.3%) did not receive one of the university's five major academic scholarships.

Whether or Not the Student Was Involved in Selected College-Level Student Activities and Organizations

The last variable that was used to describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at this research extensive university in the Southern region of the United States was whether or not the students were involved in selected college-level student activities and organizations. The only college-level organization in the study institution for which data was available was the Greek system. Of the 1,153 students who did not re-enroll for their third year in fall 2007 semester, the majority of the students ($n = 1030$, 89.3%) were not involved in the Greek system. The rest of the students ($\underline{n} = 123$, 10.7%)

were involved in one of the Greek societies, either as active members ($n = 5$, .5%) or as pledged members ($n = 118$, 10.2%).

Objective Three Results

The third objective of this study was to compare traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and inclusion in the 14th class-day statistics to those traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at the same institution as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics, on the following selected demographic and academic characteristics:

- a) Age;
- b) Gender;
- c) Race/Ethnicity;
- d) Overall high school grade point average (GPA);
- e) College entrance examination (ACT/SAT) composite scores;
- f) High school academic grade point average (GPA);
- g) Credit hours the student carried each semester;
- h) Credit hours the student earned each semester;
- i) Cumulative college grade point average (GPA) as of or at the end of second year;
- j) College grade point average for the first semester of the first year;
- k) Whether or not the student lived on campus;
- l) Initial academic college of enrollment;

- m) Whether or not the student changed major and if so the number of times changed;
- n) Whether or not the student was a resident of the state;
- o) Whether or not the student received one of the university's major academic scholarships;
- p) Whether or not the student was involved in selected college-level student activities and organizations.

An a' priori significance level of less than .05 was used to determine if the groups of students (retained and not retained) were significantly different. Of the 16 specific variables which were compared, 10 were found to be significantly related to/different by retention status.

These were as follows:

- 1. Whether or not the student lived on campus;
- 2. Whether or not the student was a resident of the state;
- 3. Whether or not the student received one of the university's major academic scholarships;
- 4. Whether or not the student was involved in the selected student activities and organizations.
- 5. Whether or not the student changed major;
- 6. Credit hours the student earned each semester;
- 7. Credit hours the student carried each semester;
- 8. Cumulative college grade point (GPA) at the end of second year;
- 9. College grade point average (GPA) for the first semester of the first year;
- 10. College entrance examination (ACT/SAT) composite scores;

The third objective was accomplished by analyzing the data using the chi-square test of independence and the independent t test procedure as appropriate for each specific variable. For the variables measured on a categorical scale, the chi-square procedure was used to determine if each of the variables were independent of the variable, retention status. Using an a' priori significance level of less than .05, five variables were categorical with chi-square values that were statistically significant, indicating that the five variables were not independent of the variable, retention status.

The five variables were:

- (1) Whether or not the students lived on campus during first and second years;
- (2) Whether or not the student was involved in the selected student activities and organizations;
- (3) Whether or not the student changed major;
- (4) Whether or not the student received one of the university's major academic scholarships; and
- (5) Whether or not the student was a resident of the state.

The results of the chi-square analysis for the other two variables examined were not significant, indicating that these variables were independent of the variable, retention status (see Table 20). Each of the five variables for which a significant chi-square value was found were further examined with appropriate contingency tables.

Table 20

Comparison of Retained Versus Non-Retained Traditional-Age Undergraduate Students on Selected Personal and Demographic Characteristics at a Research Extensive University in the Southern Region of the United States.

Variable	<u>N</u>	d f	X^2	<u>P</u>
Living Status: First Year (2005)	4,254	1	445.80	< .001
Living Status: Second Year (2006)	4,254	1	124.20	< .001
Student Activity	4,254	1	111.70	< .001
Changed Major Status	4,250	1	74.07	< .001
Scholarship Status	4,254	1	32.79	< .001
Residency Status	4,254	1	8.31	.004
Race	4,200	3	2.75	.432
Gender	4,254	1	1.82	.177

Whether or Not the Student Lived on Campus

The variable for which the highest chi-square value [$X^2(1, N = 4,254) = 445.80, p = < .001$] was found was the students' living status in their first year. This variable was defined in the study as whether or not the student lived on campus during his/her first year. The results showed that the variables, living status in first year and retention status, were not independent. The nature of the relationship between these two variables was such that a higher percentage of students who lived on campus in their first year ($n = 1787, 87.9\%$) were retained by the institution (defined as enrollment in their third year) than the percentage of students who did not live on campus in their first year ($n = 1314, 59.1\%$). (See Table 21).

Table 21

Cross Classification of Retention Status and Whether or Not the Student Lived on Campus in Their First Year for Traditional-Age Undergraduate Students Retained at a Research Extensive University in the Southern Region of the United States.

		Living Status 2005		Total N %
		Lived on Campus	Did Not Live on Campus	
Retained	<u>n</u>	1,787	1,314	3,101
	% ^a	87.9	59.1	72.9
Non-Retained	<u>n</u>	245	908	1,153
	% ^a	12.1	40.9	27.1
Total	<u>n</u>	2,032	2,222	4,254
	% ^a	100.0	100.0	100.0

Note. $X^2(1, N = 4,254) = 445.80, p = < .001$.

^a Percentage within campus living status

The variable for which the second highest chi-square value [$X^2(1, N = 4,254) = 124.20, p = < .001$] was found was the students' living status in their second year. This variable was defined in the study as whether or not the student lived on campus during his/her second year.

The results showed that the variables, living status in second year and retention status, were not independent. The nature of the relationship between these two variables was such that a higher percentage of students who lived on campus in their second year ($\underline{n} = 2573$, 92.1%) were retained by the institution (defined as enrollment in their third year) than the percentage of students who did not live on campus in their second year ($\underline{n} = 528$, 69.9%). (See Table 22).

Table 22

Cross Classification of Retention Status and Whether or Not the Student Lived on Campus in Their Second Year for Traditional-Age Undergraduate Students Retained at a Research Extensive University in the Southern Region of the United States.

		Living Status 2006		Total \underline{N} %
		Lived on Campus	Did Not Live on Campus	
Retained	\underline{n}	2,573	528	3,101
	% ^a	92.1	69.9	72.9
Non-Retained	\underline{n}	45	1,108	1,153
	% ^a	7.9	30.1	27.1
Total	\underline{n}	2,618	1,636	4,254
	% ^a	100.0	100.0	100.0

Note. $X^2(1)$, ($\underline{N} = 4,254$) = 124.20, $p = < .001$. ^a Percentage within campus living status.

Whether or Not the Student Was Involved in Selected College-Level Student Activities and Organizations

When the variable, whether or not the student was involved in selected student activities and organizations, was tested for independence from the variable, retention status, the chi-square result [$X^2(1, \underline{N} = 4,254) = 111.70$, $p = < .001$] was significant, meaning that these variables were not independent. The nature of the relationship between the two variables was such that a higher percentage of the students who were involved in the selected student activities and

organizations ($\underline{n} = 796$, 86.6%) were retained by the institution than the percentage of students who were not involved in the selected student activities and organizations ($\underline{n} = 2305$, 69.1%). It should be noted that the only organization in the study institution for which data was available was the Greek System (See Table 23).

Table 23

Cross Classification of Retention Status and Whether or Not the Student Was Involved in Selected College-Level Student Activities and Organizations for Traditional-Age Undergraduate Students Retained at a Research Extensive University in the Southern Region of the United States.

		Activity ^b Status		Total
		Activity	No Activity	$\frac{\underline{N}}{\%}$
Retained	\underline{n}	796	2,305	3,101
	$\%a$	86.6	69.1	72.9
Non-Retained	\underline{n}	123	1,030	1,153
	$\%a$	13.4	30.9	27.1
Total	\underline{n}	919	3,335	4,254
	$\%a$	100.0	100.0	100.0

Note. $X^2(1)$, ($\underline{N} = 4,254$) = 111.70, $p = < .001$.

^a Percentage within activity status. ^b The only college-level student activity/organization in the research-extensive university was the Greek System.

Whether or Not the Student Changed Major

Whether or not the students changed major during their first and second years at the study institution was another characteristic used to describe traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States. The chi-square result [$X^2(1, \underline{N} = 4,250) = 74.07$, $p = < .001$] was significant, indicating that the variables retention status and changed major status were

not independent. The nature of the relationship between the two variables was such that a higher percentage of the students who changed their major ($\underline{n} = 2030, 90.5\%$) were retained by the institution than the percentage of students who did not change their major ($\underline{n} = 1,071, 53.4\%$). (See Table 24).

Table 24

Cross Classification of Retention Status and Whether or Not the Student Changed Major for Traditional-Age Undergraduate Students Retained at a Research Extensive University in the Southern Region of the United States.

		Changed Major Status		Total $\frac{N}{\%}$
		Changed Major	Not Changed Major	
Retained	\underline{n}	2,030	1,071	3,101
	$\%^a$	90.5	53.4	73.0
Non-Retained	\underline{n}	213	936	1,149
	$\%^a$	9.5	46.6	27.0
Total	\underline{n}	2,243	2,007	4,250
	$\%^a$	100.0	100.0	100.0

Note. $X^2(1, (\underline{N} = 4,250) = 74.07, p = < .001$.

^a Percentage within changed major status.

Whether or Not the Student Received One of the University's Major Academic Scholarships

When the variable, whether or not the student received one of the university's major academic scholarships, was tested for independence from the variable, retention status, the chi-square result [$X^2(1, \underline{N} = 4,254) = 32.79, p = < .001$] was significant, meaning that these variables were not independent. The nature of the relationship between the two variables was such that a higher percentage of the students who received one of the university's major academic scholarships ($\underline{n} = 555, 81.9\%$) were retained by the institution than the percentage of

students who did not receive one of the university's major academic scholarships ($n = 2546$, 71.2%). (See Table 25).

Table 25

Cross Classification of Retention Status and Whether or Not the Student Received One of the University's Major Academic Scholarships for Traditional-Age Undergraduate Students Retained at a Research Extensive University in the Southern Region of the United States.

		Scholarship Status		Total
		Scholarship	No Scholarship	$\frac{N}{\%}$
Retained	n	555	2,546	3,101
	$\%^a$	81.9	71.2	72.9
Non-Retained	n	123	1,030	1,153
	$\%^a$	18.1	28.8	27.1
Total	n	678	3,576	4,254
	$\%^a$	100.0	100.0	100.0

Note. $X^2(1, (N = 4,254) = 32.79, p = .001$.

^a Percentage within scholarship status.

Whether or Not the Student Was a Resident of the State

When the variable, whether the student was a resident or non-resident of the state, was tested for independence from the variable, retention status, the chi-square result [$X^2(1, N = 4,254) = 8.31, p = .004$] was significant, meaning that these variables were not independent. The nature of the relationship between the two variables was such that a higher percentage of the students who were residents of the state ($n = 2621, 73.8\%$) were retained by the institution than the percentage of students who were not residents of the state ($n = 480, 68.5\%$). (See Table 26).

Table 26

Cross Classification of Retention Status and Whether or Not the Student Was a Resident of the State for Traditional-Age Undergraduate Students Retained at a Research Extensive University in the Southern Region of the United States.

		Residency Status		Total <u>N</u> %
		Residency	Non-Residency	
Retained	<u>n</u>	2,621	480	3,101
	% ^a	73.8	68.5	72.9
Non-Retained	<u>n</u>	932	221	1,153
	% ^a	26.2	31.5	27.1
Total	<u>n</u>	3,553	701	4,254
	% ^a	100.0	100.0	100.0

Note. $\chi^2(1), (N = 4,254) = 8.31, p = .004$.

^a Percentage within residency status

In order to accomplish objective 3 for variables measured on an interval or higher scale of measurement, the independent t test procedure was used. This procedure was used to determine if there was a difference in each of the variables by the retention status of the students who re-enrolled for their third year in the fall 2007 semester at this research extensive university. Using an a priori significance level of less than .05, significant differences were found in six of the eight variables. Two of the variables high school academic GPA and high school GPA) were found to be similar for both retained and non-retained students.

The Number of Times the Student Changed Major

The variable for which the greatest difference was found by retention status was the number of times students changed their major ($t_{3825} = 39.99, p = < .001$). The number of times the students changed their major was defined as the frequency with which students changed a

major from the original major in which the student was enrolled during his/her first year at this research-extensive university. The nature of the difference in this variable was such that retained students changed majors more frequently ($\underline{M} = .90$, $\underline{SD} = .76$) than the non-retained students ($\underline{M} = .19$, $\underline{SD} = .39$). The information on the number of times the student changed major is presented in Table 27.

College Grade Point Average for the First Semester of the First Year

College grade point average for the first semester of the first year was another variable for which a significant difference was found between retained and non-retained students ($t_{1509} = 24.06$, $p = < .001$). This variable was defined as the grade point average the student earned at the end of the first semester of their first year (fall 2005). The nature of the difference in this variable was such that the retained students had a significantly higher first semester GPA ($\underline{M} = 3.02$, $\underline{SD} = .70$) than the non-retained students ($\underline{M} = 2.18$, $\underline{SD} = 1.10$). Information on the first semester of the first year grade point average is presented in Table 27.

Credit Hours the Student Earned Each Semester

The credit hours students earned each semester (with the measurement, credit hours earned in the fall 2005 semester) was another variable for which a significant difference was found between the retained and non-retained students ($t_{2535} = 20.79$, $p = < .001$). This variable was defined as the total number of all academic hours for which the student received credit during their first semester of enrollment. This included all courses, both graded and un-graded (Pass/Fail) as well as credits for which the student completed an advanced placement examination. The nature of the difference in this variable was such that the retained students had a significantly higher number of credit hours earned in their first semester ($\underline{M} = 21.44$, $\underline{SD} = .97$) than the non-retained students ($\underline{M} = 15.28$, $\underline{SD} = 8.01$). The information on credit hours the student earned in the fall 2005 semester is presented in Table 27.

Credit Hours the Student Carried Each Semester

Credit hours the student carried each semester (with the measurement, credit hours carried in the fall 2005 semester) was another variable for which a significant difference was found between retained and non-retained students ($t_{1446} = 15.38, p = < .001$). The measurement for the number of credit hours the student carried was defined as the total number of graded credits for which the student was enrolled through the completion of the fall 2005 semester. This excluded credit units (courses) in which the student was enrolled for a Pass/Fail grade. The nature of the difference in this variable was such that the retained students carried a significantly higher number of credit hours ($M = 14.19, SD = 2.18$) than the non-retained students ($M = 12.39, SD = 3.74$) in the fall 2005 semester. The information on credit hours the student carried in the fall 2005 semester is presented in Table 27.

Cumulative College Grade Point Average at the End of the Second Year

The students' cumulative college grade point averages at the end of their second year was another variable for which a significant difference was found between retained and non-retained students ($t_{316} = 10.80, p = < .001$). This variable was defined as the overall grade point average the student earned at the end of his/her second year of college. The nature of the difference in this variable was such that the retained students had a significantly higher cumulative college GPA ($M = 3.06, SD = .56$) than the non-retained students ($M = 2.54, SD = .81$). Information on students' cumulative college GPA is presented in Table 27.

College Entrance Examination (ACT/SAT Composite Scores)

The last variable for which a significant difference was found between the retained and non-retained students was ACT scores ($t_{2191} = 9.50, p = < .001$). The nature of the difference in this variable was such that the retained students had significantly higher composite ACT scores

(M = 25.48, SD = 3.25) than the non-retained students (M = 24.47, SD = 3.04). Table 27 presents the comparison of the composite ACT scores.

Table 27

Comparison of Retained and Non-Retained Traditional-Age Undergraduate Students at a Research Extensive University in the Southern Region of the United States on Selected Academic Characteristics.

Variable	<u>N</u>	<u>M</u>	<u>SD</u>	<u>T</u>	d f	<u>P</u>
Number of Majors						
Retained	3,101	.90	.76	39.99	3,825	<.001
Non-Retained	1,153	.19	.39			
College GPA for fall 2005						
Retained	3,100	3.02	.70	24.06	1,509	<.001
Non-Retained	1,149	2.18	1.10			
Hours Earned fall 2005						
Retained	3,100	21.44	9.97	20.79	2,535	<.001
Non-Retained	1,149	15.28	8.01			
Hours Carried fall 2005						
Retained	3,100	14.19	2.18	15.38	1,446	<.001
Non-Retained	1,149	12.39	3.74			
Cumulative College GPA						
Retained	3,057	3.06	.56	10.80	316	<.001
Non-Retained	290	2.54	.81			
ACT Scores						
Retained	3,101	25.48	3.25	9.50	2,191	<.001
Non-Retained	1,153	24.47	3.04			
High School Academic GPA						
Retained	3,092	3.44	.37	10.82	1,917	.053
Non-Retained	1,134	3.29	.39			
High School GPA						
Retained	3,092	3.56	.30	10.92	1,932	.089
Non-Retained	1,134	3.45	.31			

The other two variables, high school academic grade point average ($t_{1917} = 10.82$, $p = .053$), and overall high school grade point average ($t_{1932} = 10.92$, $p = .089$) were not found to be significantly different when examined by retention status of traditional-age undergraduate students (see Table 27).

Objective Four Results

The fourth objective of this study was to determine if a model existed that significantly increased the researcher's ability to accurately explain the retention status of traditional-age, undergraduate students regarding whether or not they re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment or non-payment of fees and inclusion or non-inclusion in the 14th class-day statistics from the following demographic and academic characteristics:

- a) Age;
- b) Gender;
- c) Race/Ethnicity;
- d) Overall high school grade point average (GPA);
- e) College entrance examination (ACT/SAT) composite scores;
- f) High school academic grade point average (GPA);
- g) Credit hours the student carried each semester;
- h) Credit hours the student earned each semester;
- i) Cumulative college grade point average (GPA) as of or at the end of their second year;
- j) College grade point average for the first semester of the first year;
- k) Whether or not the student lived on campus;
- l) Initial academic college of enrollment;

- m) Whether or not the student changed major and if so the number of times changed;
- n) Whether or not the student was a resident of the state;
- o) Whether or not the student received one of the university's major academic scholarships;
- p) Whether or not the student was involved in selected student activities and organizations.

To accomplish this objective, the multiple discriminant analysis statistical technique was used. Multiple discriminant analysis requires that all independent variables entered in the model must be on a continuous scale of measurement (interval or ratio) or must be coded as a dichotomous variable. All the variables were examined for their level of measurement. Student retention status, measured as a dichotomous variable (students retained/students not retained), was the dependent variable in the analysis. The independent variables were entered in the model either as continuous variables or as binary-coded (dichotomous) variables. The independent variables entered in the model as continuous variables were as outlined below:

- a) Age. (This was measured as continuous variable). Age was calculated to the nearest month from the students' birth date at the time of enrollment at the study institution.
- b) Overall high school grade point average (GPA). (This was measured as a continuous variable).
- c) College entrance examination (ACT/SAT composite scores). (This was measured as a continuous variable).
- d) High school academic grade point average (GPA). (This was measured as a continuous variable).
- e) Credit hours the student carried their first semester of enrollment. (This was measured as a continuous variable).

- f) Credit hours the student earned their first semester. (This was measured as a continuous variable).
- g) Cumulative college grade point average (GPA) as of the end of their second year of enrollment. (This was measured as a continuous variable).
- h) College grade point average for the first semester of the first year. This was measured as a continuous variable – the students' grade point averages earned at the end of first semester in their first (freshman) year.
- i) The number of times the students changed their major. (This was measured as a continuous variable).

The independent variables entered in the model as binary or dichotomous variables were as follows:

- a) Gender. (This was coded as male = 1; female = 0).
- b) Race/ethnicity. (Each of the racial/ethnic categorical variable was coded as a binary variable, each subject classified as either possessing the trait or not possessing the trait. For example, a variable was created for the White Non-Hispanic race in which all the study subjects were classified as either possessing the trait of being White Non-Hispanic, coded as 1, or not possessing the trait of White Non-Hispanic, coded as 0. This was repeated for each of the racial/ethnic categories of Black Non Hispanic, Asian students, and Hispanic students. A total of four binary-coded variables were entered into the model for analysis).
- c) Whether or not the student lived on campus. (This was coded as: the student lived on campus = 1; the student lived off campus = 0).
- d) Initial academic college of enrollment. (Coding for this variable was done as follows: the student chose college of enrollment = 1; the student did not choose college of enrollment = 0). Example: the student enrolled in the College of Agriculture = 1; the student did not enroll in the College of Agriculture = 0).
- e) Whether or not the student was classified as a resident of the state. (This was classified as resident = 1 and non-resident = 0).
- f) Whether or not the student changed major (The student changed major = 1; the student did not change major = 0).
- g) Whether or not the student received one of the university's major academic scholarships. (This was defined as the student receiving one of the university's

academic scholarships = 1 and the student not receiving one of the university's academic scholarships = 0).

- h) Whether or not the student was involved in selected college-level student activities and organizations. (This was defined as student involved in the selected student activities and organizations = 1 and student not involved in the selected student activities and organizations = 0. It should be noted that the Greek System was the only college-level activity or organization that was active. Thus, students involved in the Greek system = 1; students not involved in the Greek system = 0).

The statistical procedure used in this analysis was the stepwise multiple discriminant analysis. This was because of the nature of the study: exploratory study. Thus, all variables were considered equally for the entry into the model.

Step One of Discriminant Analysis

In conducting the discriminant analysis in this study, the first step was to examine the independent variables that were to be included in the analysis for the presence of multicollinearity. Several techniques are available for conducting this procedure that help to check for the presence of excessive multicollinearity. According to Hair, Anderson, Tatham, and Black (1998, p. 2) multicollinearity is “The extent to which a variable can be explained by the other variables in the analysis. As multicollinearity increases, it complicates the interpretation of the *variate* as it is more difficult to ascertain the effect of any single variable, owing to their interrelationships.” The assessment that provides the most conclusive test for this analysis is to “Regress each independent variable on all the other independent variables” (Lewis-Beck, 1980, p. 60). The effectiveness of this method is such that this procedure takes into account the relationship of each independent variable with all of the other independent variables. This is because multicollinearity denotes the correlation of two or more independent variables.

High multicollinearity exists if any of the cumulative R^2 values approach 1.00. The cumulative R^2 values for all of the independent variables were checked to ensure that there were no cases of multicollinearity between the independent variables. The results from this series of

tests found high levels of multicollinearity among five measurements of the independent variables. Three of these measurements were excluded from the study due to their perfect correlations with other independent variables. The three were the undecided (major) ($R^2 = 1.00$), Coast and Environment (initial academic college of enrollment) ($R^2 = 1.00$), and Hispanic (as Race) ($R^2 = 1.00$).

In addition, the two other measurements, the overall high school grade point average and the high school academic grade point average were collinear at a level of $R^2 = .98$. Due to this high level of collinearity, the researcher chose to include only one of the two measures in the analysis. The measure chosen for inclusion in the analysis was the overall high school GPA. The research-extensive University's Office of Undergraduate Admissions and Student Aid considers this measurement as one of the most relevant in the student admission decisions (Personal communication, Dr. R.C. Brooks, June, 2008).

Step Two of Discriminant Analysis

The next step in determining if a model existed, using discriminant analysis, was to compare the groups (retained verses non-retained) on each of the independent variables. This was accomplished by comparing the means of each independent variable (including dichotomous) by each category of the dependent variable, retention status (retained verses non-retained). Using an a' priori significance level of less than .05, thirteen of the independent variables had statistically significant differences between the group means. These were:

- a) College grade point average for the first semester of the first year;
- b) Whether or not the student changed major;
- c) Whether or not the student lived on campus in the fall 2005 semester;
- d) Credit hours the student carried in the fall 2005 semester;
- e) Initial college of enrollment – University College Center for Advising and Counseling (UCAC);
- f) Overall high school grade point average;
- g) Credit hours the student earned in the fall 2005 semester;
- h) High school academic grade point average;

- i) Whether or not the student was involved in selected college-level student activities and organizations (the Greek system).
- j) College entrance examination (ACT/SAT composite scores);
- k) Whether or not the student received one of the university's major academic scholarships;
- l) Initial college of enrollment – Mass Communication;
- m) Initial college of enrollment – Engineering;

Among these thirteen variables for which statistically significant different means were identified, six of the variables (college grade point average (GPA) for the first semester of their first year, whether or not the student changed major, whether or not the student lived on campus in the fall 2005 semester, hours the student carried in the fall 2005 semester, whether or not the student was involved in the selected student activities and organizations, and initial college of enrollment – UCAC) were found to have higher means for the retained students than the non-retained students. The means of the groups for the remaining seven variables showed no statistically significant differences. The means and standard deviations for all groups including the F-ratio values and their respective probability values are presented in Table 28.

Step Three of Discriminant Analysis

In the third step of this discriminant analysis, the researcher examined the computed standardized canonical discriminant function coefficients. As can be seen in Table 29, the centroids for the groups were determined to be .490 for traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester and -1.350 for traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States. A total of nine independent variables entered the discriminant model producing an overall canonical correlation of $R_c = .631$.

Table 28

Comparison of Discriminating Variable Means, Standard Deviations, and F-Ratios in the Derived Exploratory Discriminant Model by Retention Status for Traditional-Age, Undergraduate Students Who Re-enrolled at a Research Extensive University in the Southern Region of the United States.

Discriminating Variable	Group				<u>F</u> - Ratio	<u>p</u>
	<u>Retained</u>		<u>Non-Retained</u>			
	<u>N</u> = 3,062		<u>N</u> = 1,112			
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>		
Semester GPA Fall 2005	3.02	.70	2.16	1.10	871.395	< .001
Change Major	.65	.48	.19	.39	856.130	< .001
Lived on Campus Fall 2005	.56	.49	.22	.41	461.295	< .001
Credit Hours Carried Fall 2005	14.19	2.17	12.38	3.73	375.102	< .001
Credit Hours Earned Fall 2005	21.39	9.79	15.11	7.68	373.750	< .001
Overall High School GPA	3.57	.30	3.45	.32	119.021	< .001
High School Academic GPA	3.44	.37	3.30	.39	117.534	< .001
Activity Status	.26	.44	.11	.31	106.516	< .001
Initial College – UCAC ^a	.03	.18	.11	.32	104.922	< .001
ACT Scores	25.48	3.26	24.49	2.95	78.056	< .001
Scholarship Status	.18	.38	.11	.31	30.188	< .001
Initial College – Mass Comm.	.07	.26	.04	.19	17.276	< .001
Initial College – Engineering	.14	.34	.11	.31	5.697	.017
Residency Status	.85	.36	.83	.38	3.003	.083

(table continued)

Initial College – Agriculture	.05	.22	.04	.20	1.426	.232
Initial College – Business	.15	.36	.14	.35	1.317	.251
Initial College – Education	.06	.24	.07	.25	.874	.350
Initial College – Art & Design	.05	.21	.04	.20	.670	.413
Initial College – Music	.01	.11	.01	.12	.171	.679
Initial College – Arts & Sciences	.16	.37	.17	.38	.155	.694
Initial College – Basic Sciences	.21	.41	.22	.41	.148	.700
Gender – White	.85	.37	.85	.35	.033	.856
Gender – Black	.00	.00	.00	.00	.00	.000
Gender	.00	.00	.00	.00	.00	.000
Age	.00	.00	.00	.00	.00	.000

^a University College Center for Advising and Counseling.

The nine variables were:

1. Semester college grade point average in the fall 2005 semester;
2. Whether or not the student changed major;
3. Whether or not the student lived on campus in their first year;
4. Initial academic college of enrollment – University College Center for Advising and Counseling (UCAC);
5. Whether or not the student was a resident of the state;
6. Whether or not the student was involved in the selected student activities and organizations.
7. Gender;
8. Initial academic college of enrollment – Agriculture;
9. Credit hours the student carried in the fall 2005 semester;

The variable that entered the discriminant model first and had the greatest influence on the dependent variable, retention status, as shown by the highest standardized discriminant function coefficient ($\beta = .827$) was the student's college grade point average for the first semester of the first year. The nature of the influence of the student's grade point average for the

first semester of the first year on student retention status (the dependent variable) was such that having a high first semester grade point average increased the likelihood of the student's retention at the institution. The second variable to enter the discriminant model was whether or not the student changed major. The standardized discriminant function coefficient for this variable was .684, and the nature of the influence of this variable on the student retention status was such that changing majors increased the likelihood of the student's retention in the institution.

The third variable that entered the discriminant model was whether or not the student lived on campus in their first year ($\beta = .645$). The nature of the influence of this variable on the retention status was such that students who lived on campus during their first year in the institution were more likely to be retained than students who did not live on campus during their first year in college. The fourth variable to enter the discriminant model was UCAC as the initial college of enrollment ($\beta = .625$). The nature of the influence of this variable on the student's retention status was such that students who enrolled in UCAC as the initial academic college of enrollment were less likely to be retained in the institution than those who did not enroll in UCAC as their initial academic college of enrollment.

Whether or not the student was a resident of the state in which the study institution was located was the fifth variable to enter the discriminant model. The standardized discriminant function coefficient for this variable was .621, and the nature of the influence of this variable on the retention status was such that students who were state residents had a higher likelihood of being retained in the institution than students who were non-residents of the state. The sixth variable to enter the discriminant model was whether or not the student was involved in the selected student activities and organizations ($\beta = .617$). The nature of the influence of this variable on the retention status was such that students who were involved in the Greek system

(the only college-level activity in the research institution which was measured) were more likely to be retained in the institution than students who were not involved in the Greek system.

The seventh variable to enter the discriminant model was gender, with the standardized discriminant function coefficient, $\beta = .613$. The nature of the influence of gender on the student retention status was such that female students had a higher likelihood of being retained in the institution than male students. The eighth variable to enter the discriminant model was Agriculture as the initial academic college of enrollment ($\beta = .610$). The nature of the influence of this variable on the student retention status was such that students who enrolled in the College of Agriculture as their initial academic college of enrollment were more likely to be retained than students who were not enrolled in the College of Agriculture. The last variable to make a significant contribution to the discriminant model was the credit hours the student carried in the fall 2005 semester ($\beta = .608$). The nature of the influence of this variable on the dependent variable, retention status, was such that students who carried more credit hours during their first semester in college were more likely to be retained than students who carried fewer credit hours during their first semester in college.

In addition to examining the standardized discriminant function coefficients, the researcher also examined the within-group structure correlations. The structure correlations provide the reader with a multivariate measure of the relationship between each of the independent variables and discriminant score computed for each subject from the variables that entered the significant discriminant model. A substantively significant structure correlation is considered to be any coefficient that is half or greater than the magnitude of the highest structure correlation. In this study, the highest structure correlation was .562. Thus, any structure correlation of .281 (half the value of .562) or higher would be considered to be substantively

meaningful in this analysis. Only four independent variables were found to have structure correlations that met this criterion in the current analysis. The four variables were:

1. Semester college grade point average for the first semester of the first year;
2. Whether or not the student changed major;
3. Whether or not the student lived on campus in their first year;
4. Credit hours the student carried in the fall 2005 semester;

Information on the structure correlations is presented in Table 29.

Table 29

Summary Data for Stepwise Multiple Discriminant Analysis of the Exploratory Model for Retention Status of Traditional-Age, Undergraduate Students Who Entered in the Fall 2005 Semester at a Research Extensive University in the Southern Region of the United States.

Discriminating Variables	β	s	Discriminating Functions	
			<u>Group</u>	<u>Centroids</u>
			Retained:	.490
			Non-Retained:	-1.350
Semester grade point average for Fall 2005	.568	.562		
Changed Major	.674	.557		
Lived on Campus Fall 2005	.354	.409		
Initial College – UCAC	-.238	-.195		
Residency Status	.138	.033		
Activity Status	.168	.196		
Gender	.121	.030		
Initial College – Agriculture	.151	.023		
Hours Carried Fall 2005	.078	.369		

(table continued)

Note: $N = 4,172$

<u>Eigenvalue</u>	<u>Rc</u>	<u>Wilk's Lambda</u>	<u>p</u>
.662	.631	.602	<.001

β = standardized discriminant function coefficient

s = within group structure correlation

Rc = canonical correlation coefficient

Step Four of Discriminant Analysis

Finally, the researcher assessed the predictive accuracy of the discriminant function by examining the correctly classified cases. The information presented in Table 30 shows that the discriminant model derived in this study correctly classified 86.7% of the original grouped cases (retained and non-retained students). In this study, the researcher used the Tau statistic as presented by Barrick and Warmbrod (1988) in measuring the substantive significance of the percentage of correctly classified cases.

Table 30

Classification of Retention Status of Traditional-Age, Undergraduate Students at a Research Extensive University in the Southern Region of the United States.

Actual Group	Number of Cases	Predicted Group	
		<u>Retained</u> <u>n</u> %	<u>Non-Retained</u> <u>n</u> %
Retained	3,070	2,922 95.2% ^a	148 4.8%
Non-Retained	1,125	410 36.4% ^a	715 63.6%

Note 1. $N = 4,195$. ^a Percent of classes correctly classified = 86.7%.

The result of this analysis procedure shows the amount of improvement with regard to the proportion of cases correctly classified over chance. The researcher found a 39.3% improvement

over chance that could possibly be obtained on the study population using the predictive model in this study (see the Prediction Equation, next page).

Predictive Equation:

$$\text{Tau} = \frac{\underline{n}_c - \sum p_i \underline{n}_i}{\underline{N} - \sum p_i \underline{n}_i}$$

\underline{n}_c = Number correctly classified

p_i = Probability of being classified into group by chance

\underline{n}_i = number in group

\underline{N} = Total number of cases (Barrick & Warmbrod, 1988).

In this study, Tau is calculated as follows:

$$\underline{n}_c = 2,922$$

$$p_i = 50\%$$

$$\underline{n}_i = 1,125 \text{ (for non-retained group); } 3,070 \text{ (for retained group).}$$

$$\underline{N} = 4,195$$

$$\begin{aligned} \text{Tau for all variables} &= \frac{2,922 - (.50)(1,125) + (.50)(3,070)}{4,254 - (.50)(1,125) + (.50)(3,070)} \\ &= \frac{2,922 - 2,098}{4,254 - 2,098} \\ &= \frac{824}{2,097} = \underline{\underline{39.3\%}} \end{aligned}$$

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Summary of Purpose and Specific Objectives

The primary purpose of this study was to determine the influence of selected demographic and academic characteristics on the decision of traditional-age, undergraduate students to re-enroll for their third year of study in the fall 2007 semester at a research extensive university in the Southern region of the United States. The dependent variable of this study was whether or not the traditional-age undergraduate students who completed their second year of study subsequently re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment or non-payment of fees and inclusion or non-inclusion in the 14th class-day statistics.

The following objectives were formulated to guide the research study:

1. To describe traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
 - a) Age;
 - b) Gender;
 - c) Race/Ethnicity;
 - d) Overall high school grade point average (GPA);
 - e) College entrance examination (ACT/SAT composite scores);
 - f) High school academic grade point average (GPA);
 - g) Credit hours the student carried each semester;
 - h) Credit hours the student earned each semester;

- i) Cumulative college grade point average (GPA) as of or at the end of their second year;
 - j) College grade point average for the first semester of the first year;
 - k) Whether or not the student lived on campus;
 - l) Initial academic college of enrollment;
 - m) Whether or not the student changed major and if so the number of times changed;
 - n) Whether or not the student was a resident of the state;
 - o) Whether or not the student received one of the university's major academic scholarships;
 - p) Whether or not the student was involved in selected college-level student activities and organizations.
2. To describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
- a) Age;
 - b) Gender;
 - c) Race/Ethnicity;
 - d) Overall high school grade point average (GPA);
 - e) College entrance examination (ACT/SAT) composite scores;
 - f) High school academic grade point average (GPA);
 - g) Credit hours the student carried each semester;
 - h) Credit hours the student earned each semester;

- i) Cumulative college grade point average (GPA) as of or at the end of their second year;
 - j) College grade point average for the first semester of the first year;
 - k) Whether or not the student lived on campus;
 - l) Initial academic college of enrollment;
 - m) Whether or not the student changed major and if so the number of times changed;
 - n) Whether or not the student was a resident of the state;
 - o) Whether or not the student received one of the university's major academic scholarships;
 - p) Whether or not the student was involved in selected college-level student activities and organizations.
3. To compare traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment of fees and inclusion in the 14th class-day statistics, to those traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at the same institution as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on the following selected demographic and academic characteristics:
- a) Age;
 - b) Gender;
 - c) Race/Ethnicity;
 - d) Overall high school grade point average (GPA);
 - e) College entrance examination (ACT/SAT) composite scores;

- f) High school academic grade point average (GPA);
 - g) Hours the student carried each semester;
 - h) Hours the student earned each semester;
 - i) Cumulative college grade point average (GPA) as of or at the end of second year;
 - j) College grade point average for the first semester of the first year;
 - k) Whether or not the student lived on campus;
 - l) Initial academic college of enrollment;
 - m) Whether or not the student changed major and if so the number of times changed;
 - n) Whether or not the student was a resident of the state;
 - o) Whether or not the student received one of the university's major academic scholarships;
 - p) Whether or not the student was involved in selected college-level student activities and organizations.
4. To determine if a model existed that significantly increased the researcher's ability to accurately explain the retention status of traditional-age, undergraduate students regarding whether or not they re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment or non-payment of fees and inclusion or non-inclusion in the 14th class-day statistics from the following demographic and academic characteristics:
- a) Age;
 - b) Gender;
 - c) Race/Ethnicity;

- d) Overall high school grade point average (GPA);
- e) College entrance examination (ACT/SAT) composite scores;
- f) High school academic grade point average (GPA);
- g) Credit hours the student carried each semester;
- h) Credit hours the student earned each semester;
- i) Cumulative college grade point average (GPA) as of or at the end of their second year;
- j) College grade point average for the first semester of the first year;
- k) Whether or not the student lived on campus;
- l) Initial academic college of enrollment;
- m) Whether or not the student changed major and if so the number of times changed;
- n) Whether or not the student was a resident of the state;
- o) Whether or not the student received one of the university's major academic scholarships;
- p) Whether or not the student was involved in selected college-level student activities and organizations.

Summary of Methodology

The target population for this study was defined as all traditional-age, undergraduate students who completed their second-year of study at a research extensive university. The accessible population was defined as all traditional-age undergraduate students who entered during the fall 2005 semester at a selected research-extensive university in the Southern region of the United States. It should be noted that the population for this study excluded all traditional-age, undergraduate students who entered during the fall 2005 semester at this research extensive

university but who had disabilities as well as those who entered the university during fall 2005 semester due to the effects of the Hurricanes Katrina and Rita that occurred toward the end of August 2005. The researcher initially identified all traditional-age, undergraduate students who entered during the fall 2005 semester from the database of the study institution's Office of Undergraduate Admissions and Student Aid.

The researcher defined these traditional-age, undergraduate students as those who had successfully completed high school, applied for admission, met the admission requirements, and entered during the fall 2005 semester at the selected research-extensive university in the Southern region of the United States. The accessible population comprised 4,254 students who entered during the fall 2005 semester at the selected research extensive university in the Southern region of the United States. The sample population was defined as 100% of the accessible population. Therefore, there were a total of 4,254 traditional-age, undergraduate students who were selected as participants for this study.

Of these 4,254 traditional-age, undergraduate students who entered during the fall 2005 semester at the selected research extensive university, there were 3,101 students who re-enrolled for their third year in the fall 2007 semester as defined by their payment of fees and inclusion in the 14th class-day statistics. The remaining 1,153 students were those who did not re-enroll for their third year in the fall 2007 semester as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics. The instrument that was used to collect data for this study comprised a researcher-designed, computerized recording form on which data from the Office of Undergraduate Admissions and Student Aid was downloaded and stored.

The specific variables that were measured were determined from the review of related literature and also from the information obtained from the study institution's Office of Undergraduate Admissions and Student Aid as well as from the Office of the Dean of Students

databases. The information from the databases was downloaded into a file that served as the research instrument. Permission for this study was sought from and granted by University administration, while the permission to access the data and approval for conducting the study was requested from and granted by the Institutional Review Board (IRB). The researcher further sought computer assistance from the Offices of Undergraduate Admissions and Student Aid.

Objectives one and two were descriptive and were analyzed using descriptive statistics. Frequencies and percentages were used for variables that were measured on a categorical scale (nominal or ordinal). Means and standard deviations were used for variables that were measured on interval or higher measurement scales. The data analysis procedure used to accomplish the third objective included the chi-square test of independence and the independent t test. For the variables that were measured on a categorical scale of measurement (nominal or ordinal), the chi-square test of independence was used to determine if each of the measures were independent of the dependent variable, whether or not the traditional-age, undergraduate students re-enrolled at the study institution. For variables that were measured on an interval or higher scale of measurement, the independent t test procedure was used to compare the retained students with the non-retained students. An a' priori significance level of less than .05 was used to determine if the independent variables were statistically significant.

Discriminant analysis technique was used to accomplish the fourth objective of this study. Retention status, measured as a dichotomous variable (retained student or non-retained student), was the dependent variable in the analysis. The independent variables were entered as either continuous variables or as binary-coded variables as appropriate. An a' priori significance level of less than .05 was used to determine if the independent variables were statistically significant.

Summary of Major Findings

The major findings in this study are discussed by objective.

Objective One

This objective was to describe traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States on selected demographic and academic variables.

1. Demographic and Personal Information

The average age of traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester was 18.44 years ($SD = .37$). Of the 3,101 traditional-age, undergraduate students who entered during the fall 2005 semester, there were more females ($n = 1,679$, 54.1%) than males ($n = 1,422$, 45.9%). White Non-Hispanics (Caucasians) ($n = 2,614$, 85.1%) comprised the vast majority in this population with Black Non-Hispanics (African Americans) ($n = 246$, 8.0%) a small but second largest among the race groups. Slightly more than one half of students lived on campus during their freshman year ($n = 1787$, 57.6%).

The vast majority of this group of students were residents of the state ($n = 2,621$, 84.5%) in which the study institution was located. Of the 3,101 traditional-age, undergraduate students who re-enrolled for their third year less than one quarter of the students ($n = 555$, 17.9%) received at least one of the university's five major academic scholarships. The only student activity or organization in the study institution for which data was available was the Greek system. Of the 3,101 students who re-enrolled for their third year, only one quarter ($n = 796$, 25.7%) of the students were involved in the Greek System.

2. Academic Information

The high school grade point averages (GPA) that were examined in this objective resulted in the following means (M) and standard deviations (SD):

- Overall high school GPA: $M = 3.56$; $SD = .35$.
- High school academic GPA: $M = 3.34$; $SD = 1.45$.

When observed by range of scores, the 3.500-3.749 range of GPA scores contained the highest number of students (overall GPA: $\underline{n} = 870$, 28.1%). The range of GPA scores that contained the second largest number of students was 3.250-3.499 ($n = 720$, 23.3%). The mean composite ACT score for these traditional-age, undergraduate students was 25.48 ($SD = 3.25$). The most frequent ACT composite range of scores was found to be 22-24 ($n = 991$, 32.0%). The overall mean hours these traditional-age, undergraduate students carried and earned during their first two years were respectively 14.44 ($SD = 2.60$) and 15.86 ($SD = 5.08$) per semester.

Throughout their first two years, most students maintained full-time status by carrying fourteen or more hours per semester. The largest group ($\underline{n} = 996$, 32.6%) of traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester had cumulative college GPAs in the range of 3.000 to 3.499. The overall mean cumulative college GPAs of this group of students was 3.06 ($SD = .56$).

Of the 3,101 traditional-age, undergraduate students who were retained by the institution, the largest group ($\underline{n} = 979$, 31.6%) had first semester of the first year college GPAs in the range of 3.000 to 3.499. The mean first semester of the first year college GPA for this group was 3.06 ($SD = .70$). For the retained students, the largest group ($\underline{n} = 654$, 22.5%) initially enrolled in the College of Basic Sciences. Of the 3,101 traditional-age, undergraduate students who re-enrolled for their third year, a high percentage ($\underline{n} = 2,030$, 65.5%) changed their major. The mean number of times this group changed major was .90 ($SD = .76$).

Objective Two

This objective was to describe traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the

Southern region of the United States as defined by their non-payment of fees and non-inclusion in the 14th class-day statistics on selected demographic and academic variables.

1. Demographic and Personal Information

The average age of traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester was 18.46 years ($SD = .40$). Of the 1,153 traditional-age, undergraduate students who did not re-enroll for their third year at this study university, there were more females ($n = 651$, 56.5%) than males ($n = 502$, 43.5%). White Non-Hispanics ($n = 954$, 84.5%) were the majority in this population with Black Non-Hispanics ($n = 34$, 4.9%) a distant second among the race groups. More than three quarters of this group ($n = 908$, 78.8%) did not live on campus during their freshman year.

The vast majority of these students were residents of the state ($n = 932$, 80.8%). Only a very small number ($n = 123$, 10.7%) of this group of students received at least one of the university's five major academic scholarships. The only student activity or organization in the study institution was the Greek system. Of the 1,153 students who did not re-enroll for their third year, the majority ($n = 1030$, 89.3%) were not involved in the Greek System.

2. Academic Information

The high school grade point averages (GPA) that were examined in this objective resulted in the following means (\underline{M}) and standard deviations (\underline{SD}):

- Overall high school GPA: $M = 3.32$; $\underline{SD} = 1.28$.
- High school academic GPA: $\underline{M} = 3.24$; $\underline{SD} = .57$.

When observed by range of scores, the 3.250-3.499 range of GPA scores contained the largest number of traditional-age, undergraduate students who did not re-enroll for their third year. ($n = 330$, 28.6%). The range of GPA scores that contained the second largest number of traditional-age, undergraduate students who did not enroll for their third year was 3.250-3.499 ($n = 248$, 21.5%). The mean composite ACT score for these group of students was 24.47 ($\underline{SD} =$

3.04). The most frequent ACT composite range of scores was found to be 22-24 ($\underline{n} = 441$, 38.2%). The overall mean hours these traditional-age, undergraduate students carried and earned during their first two years were respectively 12.57 ($\underline{SD} = 4.09$) and 11.75 ($\underline{SD} = 6.03$) per semester.

Throughout their first two years, many students in this group maintained full-time status by carrying twelve or more hours per semester. Only one quarter of the traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester ($\underline{n} = 290$, 25.2%) had data on their two-year cumulative college GPA. Of this number, the largest majority ($\underline{n} = 71$, 24.5%) had cumulative college GPAs in the range of 2.000 to 2.499. The overall mean college GPAs of this group of students was 2.54 ($\underline{SD} = .81$).

Of the 1,153 students who were not retained by the institution, a high percentage ($\underline{n} = 210$, 31.6%) had first semester college GPAs in the range of 2.500 to 2.999. The mean first semester of the first year college GPA for this group was 2.18 ($\underline{SD} = 1.10$). For the non-retained students, the largest group ($\underline{n} = 245$, 22.6%) initially enrolled in the College of Basic Sciences. Of the 1,153 traditional-age, undergraduate students who did not re-enroll for their third year, a small percentage ($\underline{n} = 213$, 18.5%) changed their major. The mean number of times this group changed major was .19 ($SD = .39$).

Objective Three

The purpose of this objective was to compare traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States to the traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States on selected demographic and academic characteristics. Of the 16 specific independent variables that were compared, 10 variables were found to be

significantly related to/different by the dependent variable, retention status, using an a' priori significance level of less than .05. These were as follows:

1. Whether or not the student lived on campus;
2. Whether or not the student was a resident of the state;
3. Whether or not the student received one of the university's major academic scholarships;
4. Whether or not the student was involved in the selected student activities and organizations.
5. Whether or not the student changed major;
6. Credit hours the student earned each semester;
7. Credit hours the student carried each semester;
8. Cumulative college grade point (GPA) at the end of second year;
9. College grade point average (GPA) for the first semester of the first year;
10. College entrance examination (ACT/SAT) composite scores;

The majority of students who lived on campus in their first year were retained in the university ($\underline{n} = 1787$, 87.9%) while a large number of students who did not live on campus in their first year ($\underline{n} = 1314$, 59.1%) were not retained in the institution [$\chi^2 (1, \underline{N} = 4,254) = 445.80$, $p < .001$]. A higher percentage of traditional-age, undergraduate students who lived on campus in their second year were retained in the institution ($\underline{n} = 2,543$, 92.1%) than the percentage of traditional-age, undergraduate students who did not live on campus in their second year ($\underline{n} = 528$, 69.9%) [$\chi^2 (1, \underline{N} = 4,254) = 124.20$, $p < .001$].

The results from the chi-square analysis [$\chi^2 (1, \underline{N} = 4,252) = 111.70$, $p < .001$], of the variable whether or not the student was involved in the selected student activities and organizations show that a higher proportion of students who were involved in the Greek system ($\underline{n} = 796$, 86.6%) were retained by the institution, while a higher proportion of students who were not involved in the Greek system ($\underline{n} = 2,305$, 69.1 %) were not retained by the institution. A higher percentage of traditional-age, undergraduate students who changed majors ($\underline{n} = 2030$, 90.5%) were retained by the study institution than traditional-age, undergraduate students ($\underline{n} = 1071$, 53.4%) who did not change majors [$\chi^2 (1, \underline{N} = 4,250) = 74.07$, $p < .001$].

The variable, whether or not the student received one of the institution's major academic scholarships, was not found to be independent of the dependent variable, retention status, thus it was statistically significant [$\chi^2 (1, N = 4,252) = 32.79, p < .001$]. A higher proportion of students who received one of the institution's major academic scholarships ($n = 555, 81.9\%$) were retained while a higher proportion of students who did not receive one of the institution's major academic scholarships ($n = 2546, 71.2\%$) were not retained. When the variable, whether or not the student was a resident of the state was tested for independence [$\chi^2 (1, N = 4,254) = 8.31, p = .004$], the majority of resident students ($n = 2621, 73.8\%$) were retained by the study institution, while a high percentage of non-resident students ($n = 480, 68.5\%$) were not retained by the study institution.

There was a significant difference between the retained and non-retained students ($t_{2535} = 20.79, p < .001$) on the variable the credit hours the student earned during their first semester. The retained students earned a significantly higher number of credit hours in their first semester ($M = 21.44, SD = .97$) than the non-retained students ($M = 15.28, SD = 8.01$). A significant difference was found between retained and non-retained students on the variable, credit hours the student carried in their first semester ($t_{1446} = 15.38, p < .001$). The retained students carried a significantly higher number of credit hours ($M = 14.19, SD = 2.18$) than the non-retained students ($M = 12.39, SD = 3.74$) in their first semester.

A significant difference was found between retained and non-retained students ($t_{316} = 10.80, p < .001$) when the variable, students' cumulative college grade point averages at the end of their second year, was examined. The retained students had a significantly higher cumulative college GPA ($M = 3.06, SD = .56$) than the non-retained students ($M = 2.54, SD = .81$). When the variable college grade point average for the first semester of the first year was examined, a significant difference was found between retained and non-retained students ($t_{1509} =$

24.06, $p = < .001$). The retained students had a significantly higher first semester GPA ($M = 3.02$, $SD = .70$) than the non-retained students ($M = 2.18$, $SD = 1.10$).

The variable, college entrance examination (ACT composite score), showed a significant difference between the retained and non-retained students was ACT scores ($t_{2191} = 9.50$, $p = < .001$). The retained students had significantly higher composite ACT scores ($M = 25.48$, $SD = 3.25$) than the non-retained students ($M = 24.47$, $SD = 3.04$).

Objective Four

The fourth objective of this study was to determine if a model existed that significantly increased the researcher's ability to accurately explain the retention status of traditional-age, undergraduate students regarding whether or not they re-enrolled for their third year of study in the fall 2007 semester at a research extensive university in the Southern region of the United States as defined by their payment or non-payment of fees and inclusion or non-inclusion in the 14th class-day statistics from selected demographic and academic characteristics. There were nine independent variables that entered the discriminant model producing an overall canonical correlation of $R_c = .631$. The nine variables were:

1. Semester college grade point average in the fall 2005 semester;
2. Whether or not the student changed major;
3. Whether or not the student lived on campus fall 2005;
4. Initial academic college of enrollment – University College Center for Advising and Counseling (UCAC);
5. Whether or not the student was a resident of the state;
6. Whether or not the student was involved in selected college-level student activities and organizations.
7. Gender;
8. Initial academic college of enrollment – Agriculture;
9. Credit hours the student carried in the fall 2005 semester;

The combination of the nine variables in the exploratory model correctly classified 86.7% of the original grouped cases. Therefore, using this predictive model, there was a 39.3%

improvement over chance that the traditional-age, undergraduate students could correctly be classified into their respective groups of retained and non-retained students.

Conclusions, Implications, and Recommendations

From the findings of this study, the researcher has derived the following conclusions, implications, and recommendations:

Conclusion One

A model was found that increased the researcher's ability to correctly classify entering students on whether or not they were retained in their third year at a research extensive university in the Southern region of the United States.

This conclusion is based on the finding that the combination of the nine variables in the discriminant model enabled the researcher to correctly classify 86.7% of the participants on their retention status. These nine variables were: semester college grade point average in the fall 2005 semester, whether or not the student changed major, whether or not the student lived on campus in the fall 2005 semester, initial college of enrollment – UCAC, whether or not the student was a resident of the state, whether or not the student was involved in the selected student activities and organizations, gender, initial college of enrollment – Agriculture, and credit hours the student carried in the fall 2005 semester.

The variables included in this model were a combination of factors that were both anticipated and not anticipated to contribute to the significant discriminant model based on previous studies. The variable, whether or not the students lived on campus in the first semester or their first year, is an example of one factor that was anticipated to contribute to the model due to research studies by Astin (1984), Galicki and McEwen (1989), Nora et al. (2005), and Velez (1985). An example of a variable that was not anticipated to contribute to the model is the initial college of enrollment (UCAC) since the researcher found that the largest group of traditional-age

undergraduate students who re-enrolled for their third year at this study institution was in the College of Basic Sciences.

Although this discriminant model correctly classified 86.7% of the participants on their retention status, 13.3% were not correctly classified. Based on this finding and conclusion, the researcher recommends further research to identify other factors that would enhance the model to correctly classify students who are retained at this research-extensive university in the Southern region of the United States. The researcher also suggests refinement of this model by integrating these nine variables with other variables that could further explain and predict future enrollment of third year students. One major variable that should be considered is the student's financial aid portfolio.

The researcher found that the majority of the students at this study institution did not receive one of the university's five major academic scholarships. Yet a higher number of students who received one of the scholarships were retained by the institution more frequently than those who did not receive one of the university's five major academic scholarships. Research (Cabrera, Nora, & Castaneda, 1992; Nora et al., 2005; Nora & Cabrera, 1996; Nora, Cabrera, Hagedorn, & Pascarella, 1996) on student retention indicates that finances play a major role in college student withdrawal decisions. The effect of Tuition Opportunity Programs for Students (TOPS) was not examined in this study. The researcher recommends further study to determine the contribution of TOPS to student retention in the study institution.

The student's high school GPA is another variable that could be considered as contributing to a student's retention. At this study institution, nearly one third (31.6%) of traditional-age, undergraduate students who were retained by the institution had high school grade point averages in the range of 3.000 to 3.499. Astin (1997) reported that high school GPA accounted for 8.6% of the variance in student retention. Robbin (2004) also found that high

school GPA is a better predictor of college student retention than standardized test scores. Some researchers (Cabrera & Nora, 1994; Cabrera, Nora, & Castaneda, 1993; Nora & Cabrera, 1996), however, reported that students' high school academic performance had very little influence on student persistence.

Nora et al. (2005) also reported that the students' mean high school GPA had little impact on college student retention or graduation rates in subsequent years. In contrast to those findings, however, DuBrock (1999) found that high school GPA had a significant influence on students' decision to re-enroll into their second and third years. Therefore, the variable, students' high school GPA could possibly help to increase the model's ability to correctly explain retention status of students. It would also be helpful to evaluate the perceptions of the enrollment management personnel in these offices regarding what influence, if any, they (the staff members) have on both retained and non-retained students. Surveys, focus groups, and individual interviews could be used to collect this information.

Another variable that could be considered in the model is the initial college of enrollment: University Center for Advising and Counseling (UCAC). The University Center for Advising and Counseling showed negative influence on discriminant model. The University Center for Advising and Counseling provides, among other things, the administrative structure for: 1) students with 30-plus hours who are seeking entry to a senior college at this study university; 2) students pursuing one of the pre-professional programs in Allied Health and Nursing at this study university's Health Sciences Centers in other locations (New Orleans and Shreveport); and 3) students attending the study university in a variety of special enrollment programs. It should be noted that the University Center for Advising and Counseling serves both the traditional and non-traditional students and provides them the opportunity to maximize their individual development goals. Pre-degree students (students who do not qualify for admission to

the study institution) are enrolled in the UCAC and given a maximum of four semesters to qualify for admission to their chosen senior colleges.

This variable needs to be studied further to find out whether or not it can improve the discriminant model. It is instructive to note that most of the students admitted to and enrolled in this college are either those with very high grade point averages seeking to enter the professional programs and senior colleges or have low grade point averages and therefore unable to meet the admission requirements for this study university. Students entering pre-professional programs such as Cardiopulmonary Science (Respiratory Therapy) and Physician's Assistant, Ophthalmic Medical Technology, Rehabilitation Counseling, Medical Technology, and others complete their studies in two years.

This probably explains the negative influence UCAC had on the discriminant model, hence to the retention status of traditional-age, undergraduate students at this research-extensive university. Most of this group of students could not have re-enrolled for their third year in the fall 2007 semester at this study institution because they had completed their pre-professional programs by this time. On the other hand, the pre-degree students who entered the study university in fall 2005 semester through admission to UCAC are likely to have either joined other colleges in the fall 2007 semester or dropped out of college for not maintaining the requisite grade point averages. It would be interesting to find out the influence of the University Center for Advising and Counseling (as initial academic college of enrollment) on the student retention.

Another variable that needs to be explored further is the College of Agriculture as the initial academic college of enrollment. The College of Agriculture had a positive contribution to the discriminant model. The college's roots in business, science, and technology make it attractive to entering freshmen. Furthermore, the College of Agriculture's land-grant status

makes it probably the oldest college at this study university, with emphasis on three areas: learning, discovery, and active engagement in the community.

Moreover, the College of Agriculture has more than 40 majors and areas of concentration within 11 academic departments and schools. All of these programs provide an interdisciplinary educational experience, reflecting the latest in science and technology. Perhaps this brief background information on College of Agriculture helps to explain the positive influence it had on the discriminant model and hence the retention status of the traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester at this research-extensive university in the Southern region of the United States. This is based on the finding that students who enrolled in the College of Agriculture were more likely to be retained in the study institution than students who did not enroll in the College of Agriculture. Further research on this variable would help understand the effect of College of Agriculture as initial academic college of enrollment on the discriminant model.

Student participation in the selected student activities and organizations is another variable that was found to contribute to the model. In this study institution, a higher number of students who participated in the Greek system (the only variable that was measured in this study) were retained than students who did not take part in the Greek system. Based on this finding and consistent with the previous studies (Astin, 1993; Pascarella & Terenzini, 1991, 2005; Purdie, 2007) on student participation and retention rates, the researcher recommends further research to establish the actual role this variable could play in improving the discriminant model. For example, what would be the role of student activities and organizations other than the Greek system on student retention at this study institution? It would be interesting to find out what effect, if any, taking part in student government, professional organizations, and international chapters of various organizations, has on student retention.

Another variable that could be studied further is the grade point average (GPA) of students during the semester of their first year. This variable had a positive influence on the discriminant model in this study. This finding is consistent with previous studies (Allen, 1999; Murtaugh, et al., 1999; Reason, 2003) which have documented that first-year grade point average, an indicator of initial academic success, is a significant predictor of student retention. The factors that help students to earn high grade point averages in their first semester need to be established in order to help enrollment management staff to implement programs that could assist in improving students' performance and ultimately their retention. Data collection through the use of focus groups, interviews, and surveys could be carried out to help in understanding the factors that enhance student academic performance in the first semester of their first year.

Conclusion Two

Minorities made up a small portion of traditional-age undergraduate students who re-enrolled for their third year in the fall 2007 semester at a research extensive university in the Southern region of the United States.

This conclusion is based on the finding that 8.0% of students who were retained identified themselves as Black Non-Hispanics (African Americans) and 8.1% of non-retained students identified themselves as Black Non-Hispanics. However, there was no significant difference in the retention rate among the minorities. This finding is consistent with other studies (Astin, 1997; Ishler & Upcraft, 2005; Nora et al., 2005; Purdie, 2007; Smith, 1995) which show that minority students (students of color) who attend predominantly White institutions are typically less likely to be retained than their White peers at those same institutions. Ishler and Upcraft (2005) posit that even though the role a student's race/ethnicity plays in retention has been widely studied, the results to date have been difficult to interpret. This is attributed to the fact that racial/ethnic identity is a very difficult variable to accurately assess due to its

confounding interaction effects with many other variables (Ishler & Upcraft, 2005; Stage & Hossler, 2000).

The minority groups, particularly Black Non-Hispanics, make up 30% (US Census Bureau, 2002) of the population of the state in which the study institution is located. However, the number of students from this minority group who were retained by the institution was disproportionately small. The researcher recommends more recruitment programs targeted specifically at minority groups, especially the African American group, be implemented in order to recruit and retain these students. Such programs are likely to increase diversity within the student population to reflect the current and projected demographic trends in the United States' population.

Conclusion Three

Overall, non-retained students entered the study institution with good high school academic records.

This conclusion is based on the finding that the mean overall high school GPA for traditional-age undergraduate students who did not re-enroll for their third year in the fall 2007 semester was 3.32 (SD = 1.28). The mean high school academic GPA for this group was 2.78 (SD = 1.44), while the mean composite ACT scores for this group was 24.47 (SD = 3.04). The high school academic records for non-retained students compared well with those for the retained students (Mean high school GPA = 3.56, SD = .35; Mean high school academic GPA = 3.34, SD = 1.45; Mean composite ACT scores = 25.48, SD = 3.25). This finding is not consistent with the other studies on the influence of academic records on student retention.

According to Swail et al. (2003) and Townsend (2006), students' ability has been measured in a variety of ways such as high school grade point average, high school rank in class, ACT/SAT scores, completion of high school preparatory courses, enrollment in advanced

placement courses, the quality of high school attended, and quality and intensity of high school curriculum. Ishler and Upcraft (2005) reported that the entering characteristic that exerts most influence on college student retention is prior academic achievement. A number of studies (Astin, 1993; Pascarella & Terenzini, 2005; Purdie, 2007; Robbin, 2004; Schwartz & Washington, 1999; Zwick & Sklar, 2005) have shown that pre-college academic achievement (as measured by ACT/SAT composite scores, high school GPA, and high school academic GPA) has a significant influence on college student retention.

Robbin (2004) found that of all the variables frequently examined, high school GPA is the most useful in predicting student retention. Further study by Nora et al. (2005) found that high school grades have a positive influence on college academic achievement, as measured by cumulative grade point averages (GPAs). However, earlier research (Cabrera & Nora, 1994; Cabrera, Nora, & Castaneda, 1993; Nora & Cabrera, 1996) found that students' high school academic performance had very little influence on student retention.

Due to inconsistencies in the findings on the influence of school academic performance on student retention, and given the finding in this study, the researcher recommends further research to determine why students with strong academic credentials leave college before their third year. There could be other factors that influence students with good high school credentials to drop out of college after their first year. Exit interviews of leaving students could be helpful in gaining an understanding of the reasons why students with good high school academic records drop out of college.

Conclusion Four

Students who lived on campus in their first year were more likely to be retained to their third year than those who did not live on campus in their first year.

This conclusion is based on the finding that the majority of students who lived on campus in their first year were retained in the study institution ($n = 1787$, 87.9%) while a small percentage of students who did not live on campus in their first year (59.1%) were retained in the study institution. It is clear from the findings of this study that a student's campus-living status played a major role towards the student's retention status in the study institution. Astin (1993) found that when compared to commuting students, students living on campus are more satisfied with their student friendships, faculty-student relations, and social life. He concluded that living on campus substantially increases student involvement.

In terms of student retention, Astin (1984) contended that living on campus substantially increased the student's chances of persisting and of aspiring to obtain a graduate or professional degree. Other studies (Galicki & McEwen, 1989; Pascarella, 1985; Velez, 1985) support Astin's (1993) findings that there are multiple positive student outcomes from living in a campus residence. Pascarella (1985) reported a significant influence of living on campus on student persistence. DuBrock (1999) also found that students living on campus were much more likely to persist past their first year in college.

However, Wolfe & Johnson (1995) found no significant differences in academic success between students who lived on campus and those who commuted to college. In their examination of the influence of living status on student retention between African American students and White students, Galicki and McEwen (1989) found that overall, African American students residing on campus persisted at a significantly higher rate than their White counterparts who resided on campus. They also reported that African American students who commuted to college had the lowest persistence rate (45 percent) compared to African-American students who resided on campus (70 percent). They further reported that most of the first-year African American students who dropped out of college did not live on campus.

The American College Testing Program, ACT (2008) reported that approximately 32 percent of first-year students in four-year institutions do not return for their second year of study. These rates are worse for students attending public institutions than private institutions (ACT, 2008). Research (Choy, 2002; Elkins, Braxton, & James, 2000; Hodum, 2007; Muckert, 2002; Seidman, 2005; Upcraft & Gardner, 1989) shows that most students leave college during their first and second years. Other recent studies (Crosling et al., 2008; Habley & McClanahan, 2004; Hodum, 2007; Lotkowski et al., 2004) reported that the current student completion rates at four-year BA/BS public colleges and all categories of two-year colleges are at the lowest level in more than twenty years in the United States.

Since this study demonstrated that the majority of the students who lived on campus in their first year in college were retained in this public university, there is need for institutions of higher education to implement programs that will require or encourage students to live on campus, especially in their first year. This could help toward increasing student retention rates as well as graduation rates. However, requiring or encouraging students to live on campus needs to be approached with caution. This is because students whose parents live within the vicinity of the study institution may prefer to live with their parents rather than live on campus.

Enrollment management personnel and recruitment officers need to implement programs that are effective in helping retain students. Such programs as learning communities, academic counseling, freshman orientation programs, and development studies could be implemented to help improve student retention. Implementing these programs should be informed by relevant research findings. Effective enrollment management models that are likely to increase, maintain, and ultimately sustain high student retention rates should be developed through collaborative research.

Conclusion Five

Only a small portion of the retained students received one of the university's five major academic scholarships.

This conclusion is based on the finding that less than one quarter ($\underline{n} = 555$, 17.9%) of the traditional-age undergraduate students who re-enrolled for their third year in the fall 2007 semester received at least one of the university's five major academic scholarships. The vast majority of this group of students ($\underline{n} = 2,546$, 82.1%) did not receive one of the university's five major academic scholarships. This researcher found a number of studies (Cabrera, Nora, & Castaneda, 1992; Nora et al., 2005; Nora & Cabrera, 1996; Nora, Cabrera, Hagedorn, & Pascarella, 1996) that support financial aid as a significant factor in the college student retention. Consistent with this finding, Nora et al. (2005) have documented the influence of financial aid on college student retention beyond the first year. DuBrock (1999) and Ishitani and DesJardins (2002) indicated that students are nearly twice as likely to persist between the second and third years if they receive financial aid. Ishitani and DesJardins (2002) found further evidence that financial aid reduces the risk of student drop out in the third year. St. John, Cabrera, Nora, and Asker (2000) explain that financial variables (such as the amount and type of financial aid received) could explain almost half of the variance in student persistence.

A student's socioeconomic status is an entering characteristic, but environmental characteristics (such as cost of tuition/fees and the amount and type of financial aid or scholarship received) also influence the likelihood of college student retention. Ishitani and DesJardins (2002) reported that the more aid a student receives, the more likely he or she will remain enrolled. From the small number of students who received one of the university's five major academic scholarships, it is apparent that there is limited funding for this purpose. Despite the limited scholarships, there is strong evidence to suggest that scholarships have a significant

influence on student retention. Given this finding, and consistent with other studies, the researcher recommends that the study institution seek funding to increase the number of scholarships to award to incoming students.

Conclusion Six

A small proportion of traditional-age undergraduate students who re-enrolled for their third year in the fall of 2007 semester at this research extensive university in the Southern region of the United States were involved in the selected student activities and organizations in the study institution, the Greek system.

This conclusion is based on the finding that only one quarter of traditional-age undergraduate students who re-enrolled for their third year were involved in the only organization in the study institution, the Greek system. Of the students who were involved in the Greek system, the vast majority ($n = 796$, 86.6%) were retained by the institution while many of the students who were not involved in the Greek system ($n = 1030$, 30.9%) were not retained by the study institution. This result is consistent with other research (Astin, 1993; Pascarella & Terenzini, 1991, 2005; Purdie, 2007) findings which show that peer-to-peer interaction both inside and outside of the classroom plays one of the most important roles in college student persistence.

Astin (1996, p. 126) observed that “the greater the interaction with peers, the more favorable the outcome.” Moore, Lovell, McGann & Wyrick (1998) found that students’ involvement in activities or organizations (such as Fraternities or Sororities or student government) was positively associated with college student retention and graduation. Tripp’s (1997) review of the literature specifically regarding the effect of Greek membership suggests that students involved in the Greek system are more likely to persist in college than their counterparts not taking part in any organization. Given this finding which is consistent with

results from other studies, the researcher recommends that students be encouraged to get involved in campus activities and organizations that are likely to help them not only remain enrolled but also ensure they graduate. The researcher also recommends further research to investigate other activities and organizations that could play an influential role in student retention.

Conclusion Seven

The traditional-age undergraduate students who re-enrolled for their third year in the fall of 2007 semester at this research extensive university in the Southern region of the United States had higher grade point averages for the first semester of their first year.

This conclusion is based on the finding that the mean first semester college GPA ($\underline{M} = 3.06$, $\underline{SD} = .70$) for traditional-age, undergraduate students who re-enrolled for their third year in the fall 2007 semester was higher than the mean first semester college GPA ($\underline{M} = 2.18$, $\underline{SD} = 1.10$) for the traditional-age, undergraduate students who did not re-enroll for their third year in the fall 2007 semester. Additionally, the largest group of retained students ($\underline{n} = 979$, 31.6%) had their first semester college GPAs in the range of 3.000 to 3.499 while the largest group of non-retained students ($\underline{n} = 210$, 18.2%) had their first semester college GPAs in the range of 2.500 to 2.999.

This finding is consistent with other studies (Allen, 1999; Cabrera & Nora, 1994; Levitz, Noel, and Richter, 1999; Murtaugh, Burns, & Schuster, 1999; Nora & Cabrera, 1996; Purdie, 2007; Reason, 2003) that have reported first-year grade point average, an indicator of initial academic success, as a significant predictor of student retention. Levitz, Noel, and Richter (1999) explain that student drop out rates tend to be the highest between the first and second years hence intervening in order to retain students past the first year of college is probably the most efficient way to increase graduation rates.

Allen (1999) reported that first-year college GPA was a statistically significant predictor of between-year retention for both minority and non-minority students. Cabrera and Nora (1994) and Nora and Cabrera (1996) found that the students' first-year academic performance in college has an impact on students' academic and social experiences, their commitment to attaining a degree, and ultimately their decisions to withdraw from college. Further studies (Bradburn, 2002; Ishitani & DesJardins, 2002; Maack, 2002) reported that college GPA exerts the largest direct effect on whether a student will return to or withdraw from college.

According to Ishitani and DesJardins (2002), students are at very high risk of dropping out of college in their second year if their first-year college GPA is below 2.00. The first semester GPA determines the academic performance of students in subsequent semesters (Murtaugh et al., 1999). Murtaugh et al. (1999), using first quarter GPA to predict retention between the first and second years of college, reported that the probability of students returning for a second year of college increased dramatically with higher first semester GPAs.

Since good initial grades are positively correlated with academic outcomes and persistence in subsequent years, it is important for colleges and universities to help students develop their academic and intellectual skills during that all important first-semester, first-year of college period. Given this finding and consistent with findings in the literature, the researcher recommends academic support programs to help students be successful in their first year of study. Such programs as academic counseling, development studies, freshman program, and learning communities have been shown to help students persist in college.

Research (AASCU, 1997; Ward-Roof & Hatch, 2003) has shown that students who receive effective academic advising tend to feel positive about the institution and thus have an increased retention rate. Seidman (1991) reported that students receiving pre- and post-admissions advisement were 20% more likely to persist than their counterparts who did not

receive advisement. Further studies (Beil, 1990; Braxton, Hirschy, & McClendon, 2004; Elliott & Healy, 2001; Peterson, Wagner, & Lamb, 2001; Steele, Kennedy, & Gordon, 1993) have shown that students who participated in advising programs persisted in college.

Weissman, Silk, and Bulakowski (1997) revealed that under-prepared students who took remedial courses experienced greater success and persisted longer than under-prepared students who did not take remedial classes. According to Castator & Tollefson (1996, p. 179), “...Findings strongly support the formulation of intrusive policies that require under-prepared students to complete their developmental course work prior to or concurrently with enrollment in college level courses.”

The researcher further recommends additional research to determine what factors lead to the higher first semester grade point averages. Understanding the factors that help students earn higher grades in their first semester of college could enable enrollment management personnel to plan how best to help students who are under prepared for college life.

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APPENDIX A

IRB CONSENT FORM

Application for Exemption from Institutional Oversight

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/projects using living humans as subjects, or samples or data obtained from humans, directly or indirectly, with or without their consent, must be approved or exempted in advance by the LSU IRB. This Form helps the PI determine if a project may be exempted, and is used to request an exemption.



Institutional Review Board
Dr. Robert Mathews, Chair
203 B-1 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.6792
irb@lsu.edu | lsu.edu/irb

- Applicant, Please fill out the application in its entirety and include the completed application as well as parts A-E, listed below, when submitting to the IRB. Once the application is completed, please submit two copies of the completed application to the IRB Office or to a member of the Human Subjects Screening Committee. Members of this committee can be found at <http://www.lsu.edu/irb/screeningmembers.shtml>
- A Complete Application Includes All of the Following:
 - (A) Two copies of this completed form and two copies of parts B thru E.
 - (B) A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1 & 2)
 - (C) Copies of all instruments to be used.
 - If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.
 - (D) The consent form that you will use in the study (see part 3 for more information.)
 - (E) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless already on file with the IRB.
Training link: (<http://cme.cancer.gov/clinicaltrials/learning/humanparticipant-protections.asp>.)

1) Principal Investigator: Joseph M. Lutta Rank: Student Student*? Y/N Y

Dept.: SHRPWD Ph: 578-7599 E-mail: j.lutta@lsu.edu

2) Co Investigator(s): please include department, rank and e-mail for each
* If student, please identify and name supervising professor in this space

Michael F. Burnett, Director
School of Human Resource Education and Workforce Development

3) Project Title: Factors that Influence Traditional Age College Students to Re-enroll in their Third Year at a Research Extensive University in the Southern Region of the United States

4) LSU Proposal?(yes or no) Yes If Yes, LSU Proposal Number
Also, if YES, either ☐ This application completely matches the scope of work in the grant
OR
☐ More IRB Applications will be filed later

5) Subject pool (e.g. Psychology Students) University students in Fall 2005
• Circle any "vulnerable populations" to be used: (children <18; the mentally impaired, pregnant women, the aged, other). Projects with incarcerated persons cannot be exempted.

6) PI Signature [Signature] ** Date 4/30/08 (no per signatures)
**I certify my responses are accurate and complete. If the project scope or design is later changed I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time the consent forms should be preserved in the Departmental Office.

Effective August 1, 2007, all Exemptions will expire three years from date of approval, unless a continuation report, found on our website, is filed prior to expiration date

Screening Committee Action: Exempted ☒ Not Exempted ☐ Category/Paragraph 4

Reviewer Mathews

Signature [Signature]

Date 5/2/08

Study Exempted By:
Dr. Robert C. Mathews, Chairman
Institutional Review Board
Louisiana State University
203 B-1 David Boyd Hall
225-578-8692 | www.lsu.edu/irb
Exemption Expires: 5-1-2011

IRB# E40710 LSU Proposal#
☒ Complete Application
☒ Human Subjects Training

APPENDIX B

CONCORDANCE BETWEEN SAT I RECENTERED V + M (VERBAL + MATH) SCORE AND ACT COMPOSITE SCORE TABLE

Table C-2
Concordance Between SAT I Recentered V+M Score and ACT Composite Score

SAT I V+M	ACT Composite	SAT I V+M	ACT Composite	SAT I V+M	ACT Composite	SAT I V+M	ACT Composite	SAT I V+M	ACT Composite
1600	35-36	1370	31	1140	25	910	19	680	14
1590	35	1360	31	1130	25	900	19	670	14
1580	35	1350	30	1120	24	890	18	660	14
1570	35	1340	30	1110	24	880	18	650	13
1560	35	1330	30	1100	24	870	18	640	13
1550	34	1320	30	1090	24	860	18	630	13
1540	34	1310	29	1080	23	850	17	620	13
1530	34	1300	29	1070	23	840	17	610	13
1520	34	1290	29	1060	23	830	17	600	13
1510	34	1280	29	1050	22	820	17	590	13
1500	33	1270	28	1040	22	810	17	580	12
1490	33	1260	28	1030	22	800	16	570	12
1480	33	1250	28	1020	22	790	16	560	12
1470	33	1240	28	1010	21	780	16	550	12
1460	33	1230	27	1000	21	770	16	540	12
1450	32	1220	27	990	21	760	16	530	12
1440	32	1210	27	980	21	750	15	520	12
1430	32	1200	26	970	20	740	15	510	11
1420	32	1190	26	960	20	730	15	500	11
1410	32	1180	26	950	20	720	15		
1400	31	1170	26	940	20	710	15		
1390	31	1160	25	930	19	700	14		
1380	31	1150	25	920	19	690	14		

This table can be used to relate SAT I V+M scores to ACT Composite scores.

The estimates are based on the test scores of 103,525 students from 14 universities and two states who took both the ACT and the SAT I between October 1994 and December 1996. Because the ACT and the SAT I have different content, students' actual scores on the ACT could differ significantly from the concordance estimates in the table.

Source: ACT, Inc. Questions about the concordance study may be directed to ACT's Research Division (319/337-1471).

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VITA

Joseph George Mulama Lutta was born in Mumias, Kenya, in October, 1963, to the late Mr. Stephen Charles and Frida Atsiende Lutta. He graduated from St. Paul's Amukura High School in 1981 and Musingu High School in 1984 (after advanced level schooling). Mr. Lutta received a Bachelor of Science degree, majoring in agricultural education and extension in 1990 from Egerton University, Njoro, Kenya. Upon graduation from college, Mr. Lutta taught mathematics, biology, and agriculture at Musoli Girls High School before joining Mumias Sugar Company, Kenya, as a Management Trainee in April 1991.

Mr. Lutta worked with Mumias Sugar Company, Kenya, for more than 13 years, holding various managerial positions including: Harvesting Manager, Company Agronomist, and Nucleus Estates Manager. He joined Louisiana State University & Agricultural and Mechanical College, Baton Rouge and began the pursuit of his master's degree in August, 2004. Mr. Lutta earned a Master of Science in Human Resource and Leadership Development in 2006 from Louisiana State University. He began his doctoral degree program in the summer of 2006, under the guidance of Dr. Michael Burnett, the Director of the School of Human Resource Education and Workforce Development.

From 1982 to 1984, he served as the Head Student at Musingu High School, Kenya, while pursuing advanced level education (baccalaureate). Between 1986 and 1988, Mr. Lutta was elected President of Student Government at Egerton University, Njoro, Kenya. He also held many leadership positions both in public and private institutions. In 1999 through 2003, he was the chair of Parents/Teachers Association, Booker Academy, a private school owned and managed by Mumias Sugar Company, Kenya. From 1998 to 2004, he chaired the Sukari Savings and Credit Co-operative Society while in 2004, he was appointed the chair, Procurement Committee for Mumias Sugar Company, Kenya. He was also chair of Namulungu High School's

Board of Governors between 2001 and 2004. Mr. Lutta's goal of pursuing a doctoral degree from Louisiana State University began after a conversation with his long time friend and former classmate, Dr. Fredrick Nafukho, an alumnus of LSU, who encouraged him to pursue his higher education at LSU.

Mr. Lutta holds professional memberships in: Gamma Sigma Delta (Agricultural Honor Society); The East African Society of Sugar Cane Technologists (EASCT); The Kenya Society of Agricultural Professionals (KESAP); The Co-operative Insurance Society of Kenya (CIS – K); The American Society of Human Resource Development (Baton Rouge Chapter); and The Kenya Institute of Management. He and his wife, Florence Ooche Lutta, have four children, Patricia Mary Lutta, Stephen Odanga Lutta, Anitta Awuor Lutta, and Perscilla Atsiende Lutta, who all live in Kenya.

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